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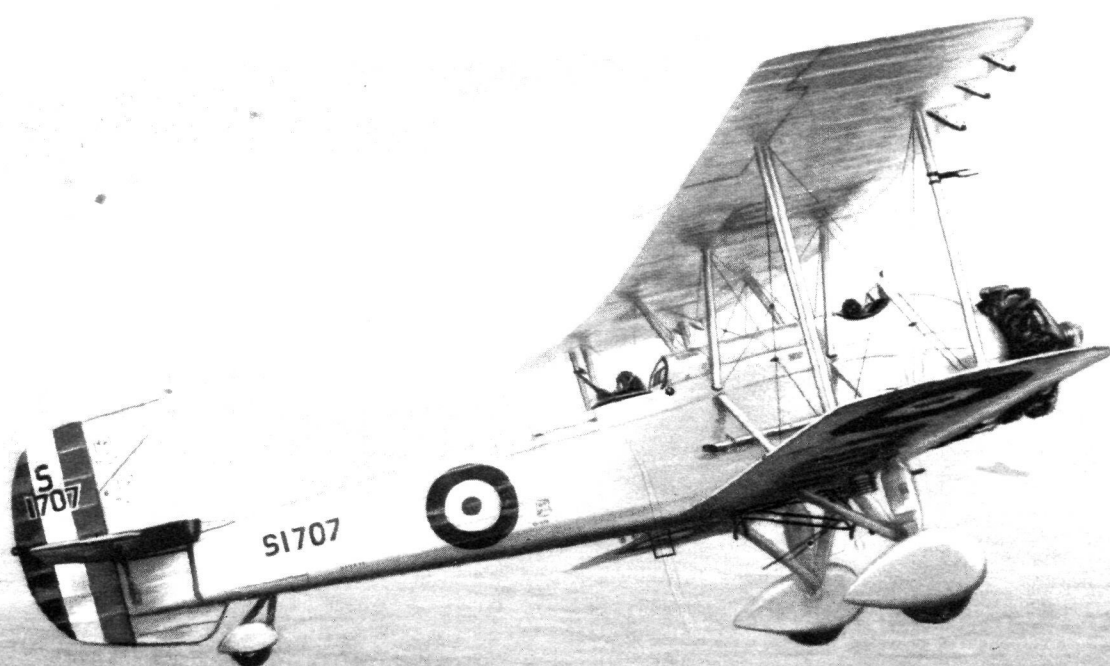
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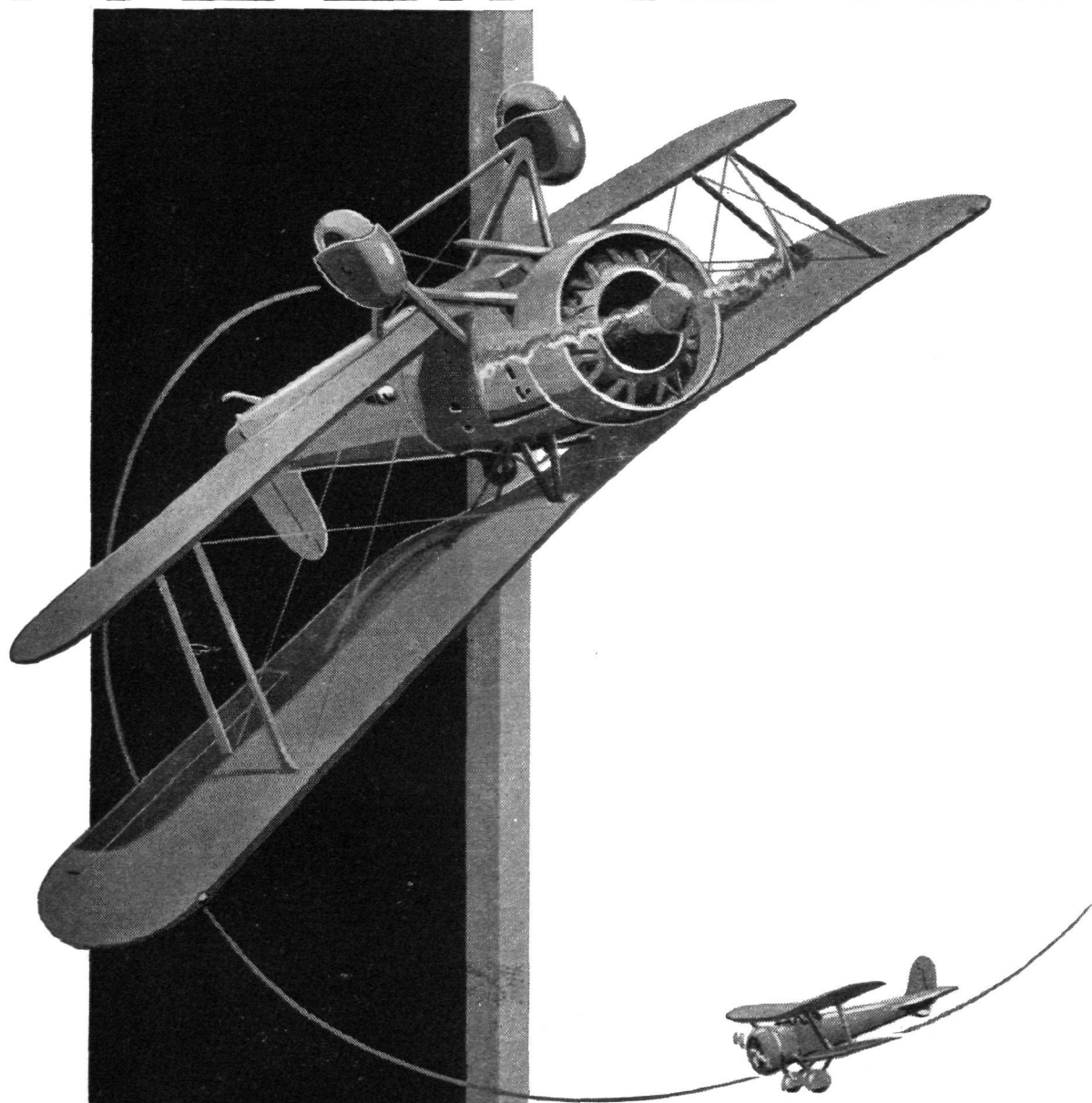
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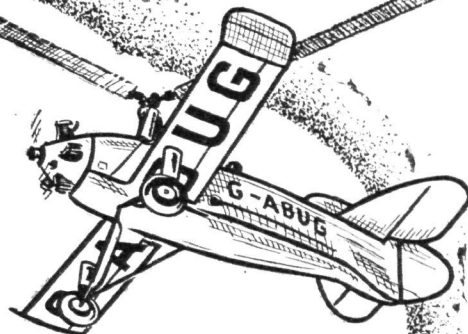
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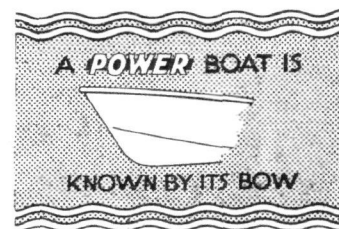
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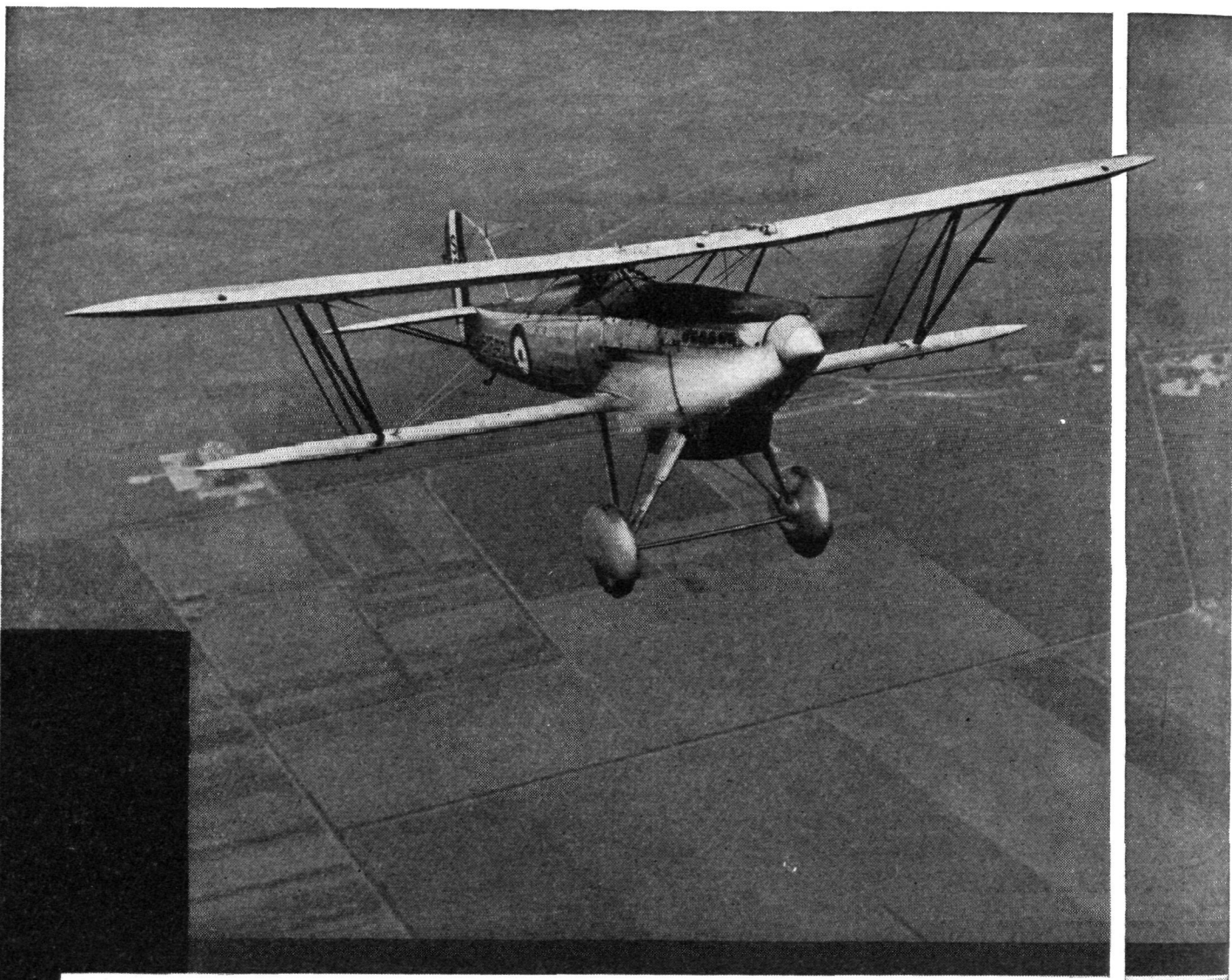
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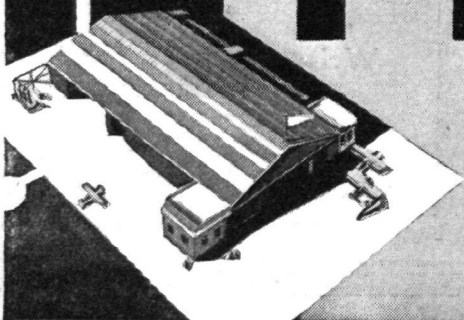
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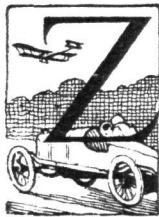
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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

- 1933.
- Nov. 23. Lincolnshire Ae.C. Annual Dance, "The Gaiety," Grimsby.
 - Nov. 24. Central Flying School "Coming of Age" Dinner, at May Fair Hotel.
 - Nov. 24. Yorkshire Ae.C. Annual Dance, Hotel Majestic, Harrogate.
 - Nov. 25. Comrades of the R.A.F. Reunion Dinner, at Thames House Restaurant, Millbank, S.W.1.
 - Nov. 25. Elec. and Wireless School Officers' Reunion Dinner, at R.A.F. Club, Piccadilly.
 - Nov. 27. Cinque Ports Winter Dance, Leas Pavillion, Folkestone.
 - Nov. 30. "Tail Buffeting." Lecture by Dr. W. J. Duncan before R.Ae.S.
 - Dec. 1. No. 3 Sqdn. R.F.C. and R.A.F. Reunion Dinner, at May Fair Hotel.
 - Dec. 1. No. 70 Sqdn. R.A.F. Reunion Dinner, at R.A.F. Club, Piccadilly.
 - Dec. 1. Martlesham Annual Dinner.
 - Dec. 1. Lancashire Ae.C. Annual Ball, Midland Hotel, Manchester.
 - Dec. 1. Hampshire Ae.C. Annual Dinner and Dance, South Western Hotel, Southampton.
 - Dec. 1. Leicestershire Ae.C. Dance, at Palais de Danse, Leicester.
 - Dec. 2. De Havilland Works Annual Dinner, First Avenue Hotel, London.
 - Dec. 6. A.I.D. Approved Inspectors' Dinner, Royal Victoria Hotel, Sheffield.
 - Dec. 7. "Possible Future Development of Aircraft Engines." Lecture by A. H. R. Fedden before R.Ae.S.
 - Dec. 8. Calshot Reunion Dinner, at R.A.F. Club, Piccadilly, W.1.
 - Dec. 8. Airports Conference, Mansion House.
 - Dec. 13. London Ae.C. Annual Dinner and Dance, Park Lane Hotel.

EDITORIAL COMMENT



EAL has been lacking, say the Opposition, in the Government when pushing the cause of disarmament at Geneva. Never have we heard a charge levied with less justification. Seldom in the history of human effort has a pleader so steadfastly refused to be discouraged by rebuffs as have Mr. Ramsay MacDonald and Sir John Simon. The United States has rebuffed them, Japan has rebuffed them, Germany has rebuffed them, and yet they go on trying, trying, trying, to get the League of Nations to agree to some measure of disarmament. They do not count it as a rebuff that Mr. Baldwin has made the very sensible remark that "Disarmament will not stop war"—a remark which faces the facts and does not cling to beautiful but impracticable theories. Devotion of that sort is a speciality of the Liberal and Labour elements in politics, but so long as they do nothing worse than expend time and money at Geneva it would be heartless to condemn them for their admirable idealism.

The National Government as a whole is not, however, completely unpractical in its disarmament efforts. In his reply to the Censure Motion brought forward on Monday, November 13, by the amusing Mr. Morgan Jones, the Prime Minister declined to repudiate the reservation made in the British disarmament plan in favour of "police bombing" in outlying parts. On the contrary, he made the interesting statement that there had not been an hour wasted by the Disarmament Conference in discussing this reservation, and that it had never at any time been raised as a serious obstacle to an agreement. At the same time the Prime Minister said that we had made it a condition with regard to changes in bombing that "civil aviation should be controlled internationally, more particularly in so far as civil aviation could become an immediate and serious menace to a civil population should war unfortunately break out." He followed this up with the striking passage: "To scrap an Air Force and to develop on the lines that were now being pursued so rapidly and so successfully by our splendid engineers in

charge of civil aviation . . . would in our geographical situation be not only madness but criminality."

Not only FLIGHT, but every sensible person will applaud that declaration on the part of the Prime Minister. The operations of a disciplined and highly-trained Air Force must be far less of a menace to civilian life than would be the efforts of untrained bombers in converted civilian aeroplanes. The former would usually hit their marks, which would be places of military importance: the latter would almost invariably miss them and scatter their bombs among the civilian population. Of course we may reflect that if we retained a force of regular fighter squadrons, the amateur bombers of the enemy would fall an easy prey to them, while regular, trained, bombing formations would be a tougher nut to crack; but Geneva is not considering a proposition to allow fighters to survive when bombers are abolished, and so the above reflections are mainly academic.

Great Britain, as the Prime Minister reported in his speech, has asked for an immediate conference to draw up a scheme for the international control of civil aircraft, so as to ensure that they could never be misused for warlike purposes. Some time ago Lord Londonderry made it very clear to the Disarmament Conference that such a scheme must be intensely practical, and must make it quite impossible for civil aircraft to be misused for warlike purposes in any circumstances whatever, if it was to be accepted by Great Britain as a reason for disbanding her air forces. No such scheme has yet been evolved. We cannot imagine anyone drawing up a scheme which would fulfil the conditions laid down by the British Government through Lord Londonderry. We very much dislike the idea of international inspection and control of civil aircraft, but until the practical scheme has made its appearance we may let that pass. Apparently other nations also dislike the idea, not least of them being the United States, a Power which shows great enthusiasm for disarmament by everyone except itself. So it appears that the Royal Air Force is not in imminent danger of being disbanded.

It should not be forgotten that Lord Londonderry laid down one other condition for air disarmament by this country. That was that every other Power should also disarm in the air. If Japan, the United States, and above all, Soviet Russia, do not disband their air forces, the plan of Great Britain becomes null and void. Again we say that the existence of the Royal Air Force is in very little danger. Yet, despite all the difficulties which have to be overcome before disarmament can be called a possibility, the Government goes on trying to produce an effect at Geneva. The charge of lack of zeal brought forward by the Opposition is surely the most unfounded charge ever made. No wonder the vote of censure failed!

Rumours are current in the Press of South Africa that the Union Government is proposing a re-organisation of the South African Air Force. At present that Force is concentrated at Roberts Heights, near Pretoria, and it is suggested that in the future one squadron shall be stationed at Capetown, one at Durban, and one at Bloemfontein. At the same time it has been suggested that Robin Island, off Capetown, which was once a leper settlement, shall be made into a seaplane base.

The South African Air Force

Before Imperial Airways opened the through service to Capetown, the Royal Air Force used to send a formation flight from Egypt to the Cape every year, and usually the South African Air Force used to meet this formation on the way and accompany it for the rest of the trip. That brought the S.A. Air Force into prominence; and, in addition, every now and then it was called upon to take part in quelling some native trouble in some part of South Africa. One smart and thirsty little campaign in the mandated territory of South West Africa took place in the last few years.

Apart from these incidents, not very much has been heard of this Force in the outside world, and not much is known of its organisation. The Force, despite its name, is not an independent Service like the Royal Air Force in Great Britain and the Royal Air Forces of Canada and Australia. It is, like that of New Zealand, a branch, or arm, of the military forces of the Dominion. The eminent pilot, Sir Pierre Van Ryneveld, who has done so much to make the Force efficient, now holds the rank of Brigadier General, and has been appointed Chief of the General Staff of the Union forces.

The S.A. Air Force is organised on the same lines as the Royal Australian Air Force and also the Cadre squadrons of the R.A.F., with a regular and a citizen element. It consists of a Headquarters, an aircraft depot, a flying training school capable of dealing with 20 pupils, Service Squadrons, Special Reserve pilots, and a General Reserve of Officers. Citizens under training as pilots or airmen are known as Cadets. According to the latest official report on the Defence Force, there was at the beginning of 1932 only one Service Squadron fully established. Twenty-four Special Reserve pilots are allocated to each active aeroplane flight.

Naturally, when the strength of the Force depends so largely on recruiting citizen pilots and airmen, there are drawbacks in the system of massing the whole force near Pretoria. No doubt the Transvaal provides the greatest number of young men suitable to join the Force, but the other provinces would like to play their part. It will certainly be easier for the young men of the Cape, Natal, and the Orange Free State to join the Force if a squadron is stationed at each of the capital cities. The scheme has not yet been approved by the Government, but, on the face of it, it seems a desirable reform.

TO OUR READERS OVERSEAS

who will receive this issue on or about December 25, FLIGHT offers its best wishes for a happy Christmas and a very successful and fortunate New Year.

GUARDING THE TAIL :
This composite photograph shows a rear gunner in the tail of a Vickers "Virginia" ready for any attacks by enemy fighters.
(FLIGHT Photos.)



NO. 502 (ULSTER) (BOMBER) SQUADRON

By MAJOR F. A. de V. ROBERTSON, V.D.

ONCE upon a time, so tradition says, two Irish chieftains in their boats were racing for the shore, some shore in what is now the Province of Ulster. The piece of land which they were approaching seems to have been very desirable, and anyway each wanted to obtain it for himself. The rule of those days

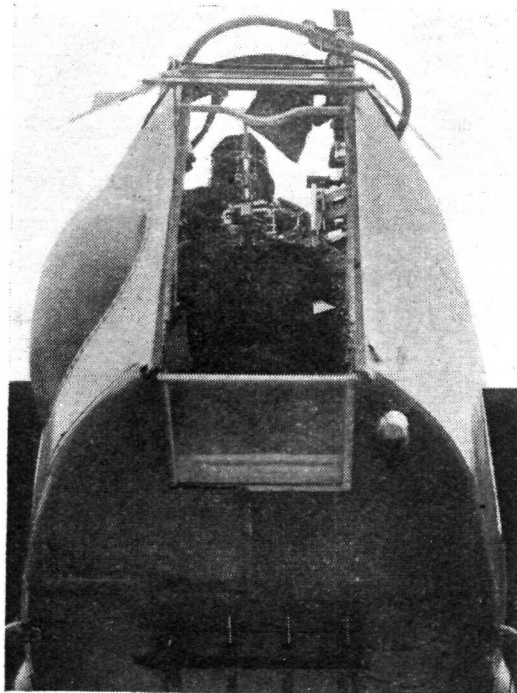
was that in the case of unclaimed land the man who first touched the soil could claim it as his own. The chiefs urged their boatmen to pull hard, and a really spirited boat race was in progress. As the boats drew near to the land, one of them shot ahead, and it seemed likely that the chief in that boat would be the first to leap



A LINE-UP : Six Vickers "Virginia" night bombers (twin Napier "Lions") of No. 502 (Ulster) (Bomber) Squadron at Aldergrove Aerodrome. (FLIGHT Photo.)

ashore, and so win the land for himself. But the chief in the slower boat was a determined fellow. Like the modern Oxonian, he was not going to admit himself inferior just because the other fellow had some oarsmen who could row a trifle faster than his own. Drawing his sword, he hacked off one of his hands against the side of the boat, and then standing up he threw the bleeding hand ashore, and so touched the land before his rival was able to do so. That, at least, is how the story was told to me. Probably the mutilated chief afterwards became King of Ulster. At any rate, from that day onwards the badge of Ulster has been a red hand. That it should also be the trade mark of a certain brand of liquid refreshment has nothing to do with my story. When in May, 1925, the Ulster Bomber Squadron was founded, it naturally adopted as its badge the Red Hand of Ulster.

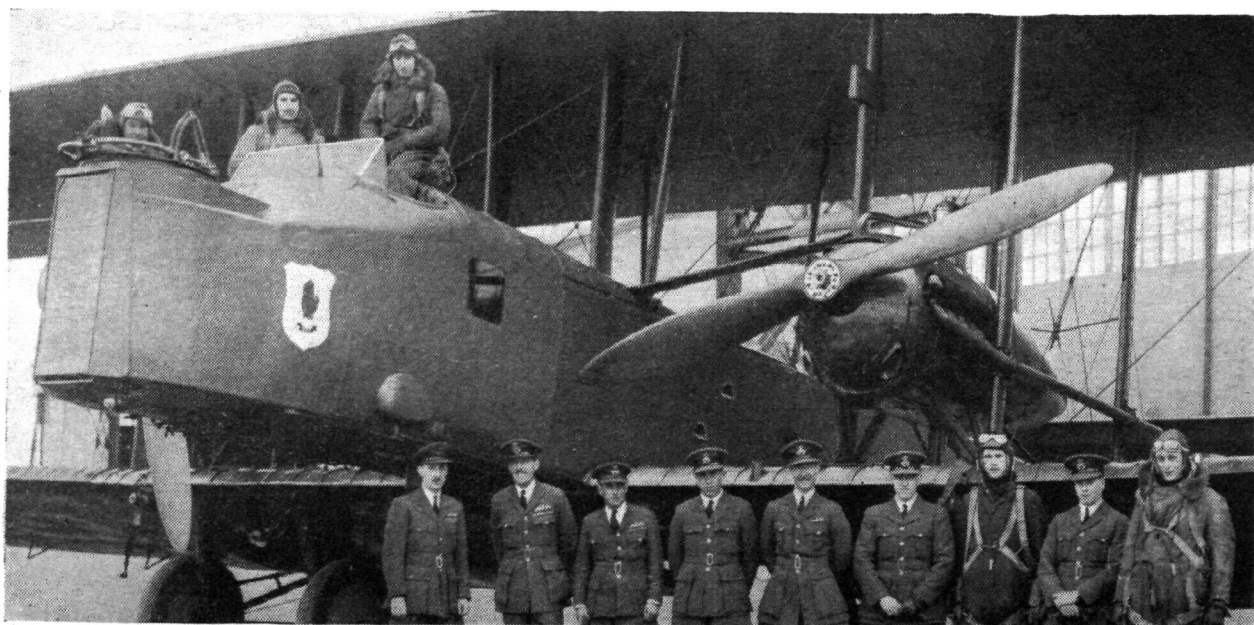
The Ulster Squadron is what is known as a Cadre Squadron, and if I am not mistaken, it was the first Cadre Squadron to be formed. Outside the Royal Air Force probably very few people know what is meant by the term. There are three descriptions of squadron in the Command, Air Defence of Great Britain, namely, regular, Cadre and Auxiliary. The first name explains itself. So does the third, or very nearly. The organisation of Auxiliary squadrons has often been described in *FLIGHT*. Briefly, the personnel are mostly civilians serving on the same footing as the Territorial Army. The adjutant, assistant adjutant, stores officer, and a small nucleus of airmen are regulars. The rest of the squadron are Auxiliaries. The Cadre squadron is different from either of the above. In every Cadre squadron there is at least one complete flight composed entirely of regulars, and the C.O. is always a regular. The remaining flight or flights are composed of civilian personnel, who in this case are not called Auxiliary, but Special Reserve. Thus the Cadre squadron is rather like a half-way house between the regular and the Auxiliary squadrons. In the Auxiliary squadrons the non-regular element is very much in the ascendancy, though, of course, the efficiency of the squadron depends a great deal on the



THE BOMB-AIMER : The critical moment of a raid, when the nose is opened and aim is taken at the target. (*FLIGHT Photo.*)

adjutant. In a Cadre squadron the regular element is definitely the stronger, for not only is the C.O. a regular, but the officers of the regular flight are the permanent inhabitants of the station and of the officers' mess, which the Special Reserve officers are only able to visit in their spare time. In the Royal Australian Air Force there are squadrons organised on something the same lines as the Cadre squadrons, but in European forces this British form of unit is probably unique. It has the advantage of being cheaper than a regular squadron, while it ought to be easier to mobilise a Cadre squadron for war than to do the same with an Auxiliary squadron. That, at least, would seem to have been the original idea, but the Auxiliaries have surpassed expectations by their efficiency as well as their keenness, and it would be unfair to them to suggest that they would not be very prompt in mobilising.

Some of the Cadre squadrons are day bombers and some are night bombers. In the former case there are three flights, one of which is regular. Night bomber squadrons have two flights, one of which is regular. In the case of all twin-engined units the commanding officer holds the rank of Wing Commander, and the flights are commanded by squadron leaders. The Ulster Squadron is a night-bombing unit, and is equipped with the Vickers "Virginia," driven by two Napier "Lion" engines. The establishment of aircraft in peace time is four "Virginias" and one Avro for each flight, but at Aldergrove Aerodrome there is at present a shortage of shed room, and so each flight has on charge only three "Virginias" and the Avro. New buildings have been promised. The Avros are for giving flying instruction to the Special Reserve officers, who are not expected to be qualified pilots when they join the squadron. Among the regular officers of the squadron there are two qualified flying instructors, and the newly-joined officers are given *ab initio* training on the Avros, and can qualify for their "wings" in the squadron. The authorised strength of the Ulster Squadron is:—Regulars, 13 officers and 131 airmen; Special Reserve, 12 officers and 98 airmen, giving a total strength of 25 officers and 229 airmen.



THE SPECIAL RESERVE FLIGHT : Names, left to right: (in pilot's cockpit) Flt. Lt. R. C. Newton, S.R., and F/O. C. W. Lindsay, S.R.; (on ground) Flt. Lt. H. K. Goode, D.S.O., D.F.C., Adjt.; Wing Com. L. T. N. Gould, M.C., Commanding Officer; Flt. Lt. J. H. Sender; P/O. R. T. Corry, S.R.; F/O. J. K. Brew; P/O. B. G. Corry, S.R.; P/O. F. F. Rainsford, S.R.; P/O. J. L. C. Newton, S.R., and P/O. J. A. Robinson, S.R. (*FLIGHT Photo.*)



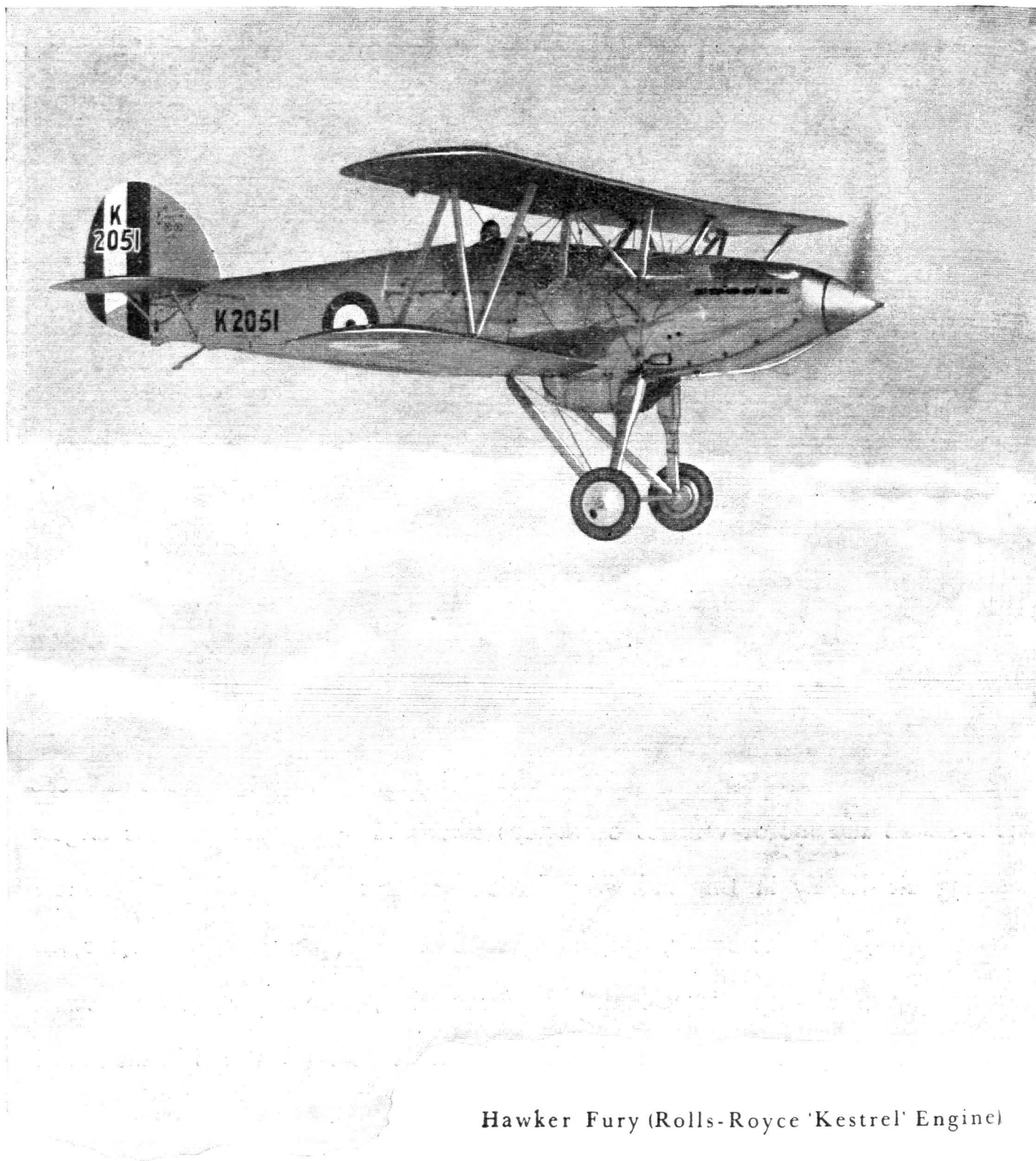
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INSTRUCTION : A sergeant teaching airmen to suspend bombs in the racks under the nose of a "Virginia." (FLIGHT Photo.)



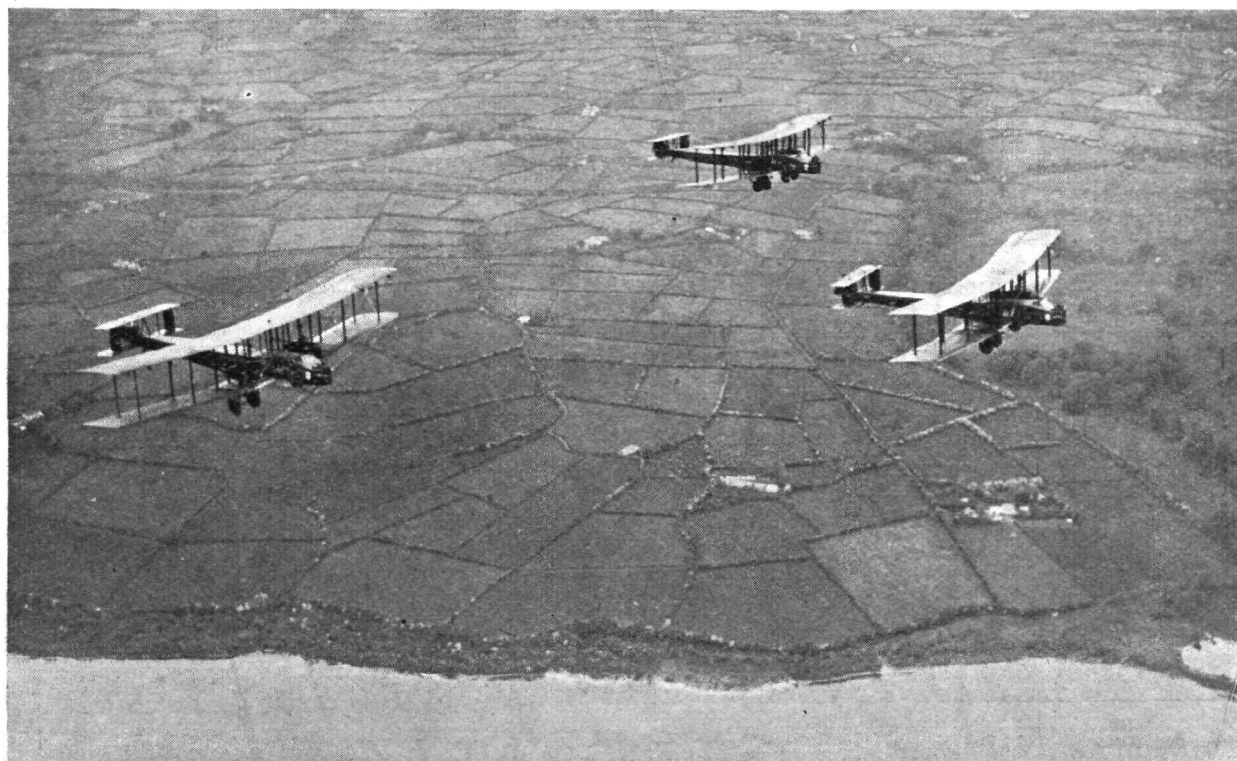
The terms on which a Special Reserve commission is granted are that the officer must spend one month in residence on the station, though he is allowed to spend up to six months. During his residence he receives the pay and allowances of his rank. In his first year and a half with the squadron he must do 183 days' work with them, and after that at least 20 instructional parades a year. He must also go each year on the 14 days' training in camp, which is usually held at Manston. This year the camp was held from July 9 to 22, during which time the squadron formed part of the forces of Southland in the Air Exercises Administratively, No. 502 (Ulster) (Bomber) Squadron belongs to the Western Area, which forms part of the Command, Air Defence of Great Britain.

The Special Reserve airmen also do one month's initial training on the station, during which they are paid. There are also a number, usually eight, week-ends in the year for which pay is given. The airmen, too, must attend the annual camp at Manston or elsewhere. They can come out and work in the squadron any day except Wednesdays and Thursdays. On Wednesday afternoons there are compulsory games. It is necessary to have time off in the middle of the week for the sake of the regular personnel, as they are obliged to work hard during the week-ends. It is naturally at the week-ends that the Special Reserve officers and men come out in force to Aldergrove, and then the regulars have to be on duty in full strength.

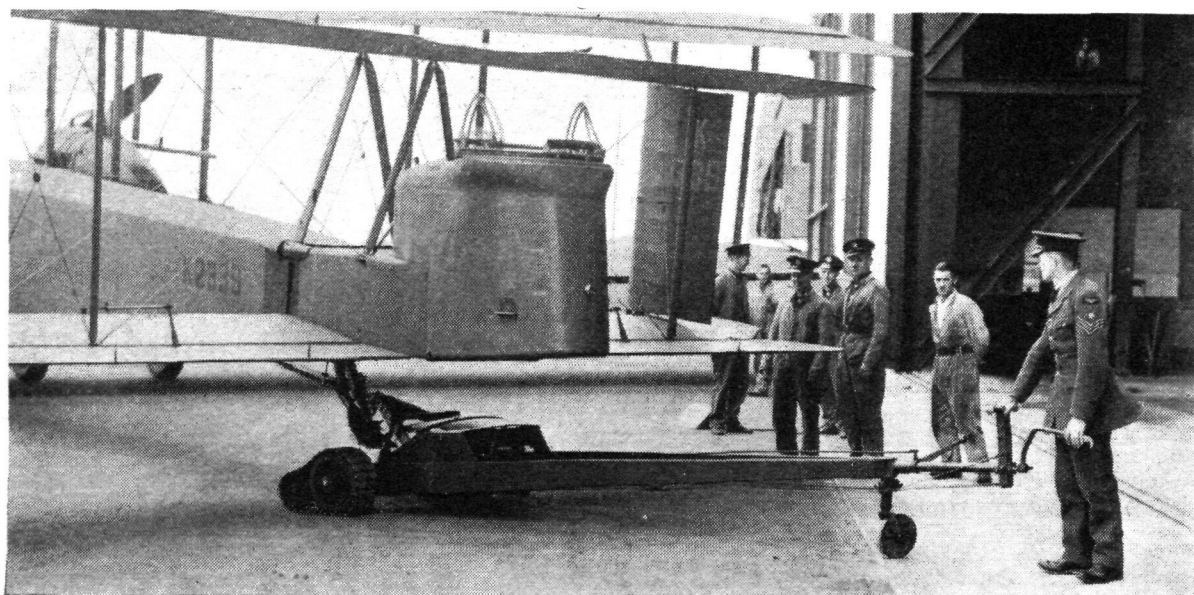
Nearly all the Special Reserve personnel come from Belfast, though some officers come from other parts of the Six Counties which constitute Northern Ireland. The adjutant always has a waiting list of men who want to join as airmen, and he is therefore able to pick and choose.

Belfast is full of good mechanics, and so the Special Reserve airmen are a very competent lot. Generally the squadron does not accept unemployed men. They might conceivably join for motives other than keenness on the work of the squadron. Also it does not as a rule take men who have served in the Royal Air Force. They have already been trained and would be available for the service of the country in time of need. A Cadre squadron, it is held, should train men who have had no Service training before. The aim is to train the Special Reserve men up to the standard of the regulars. The two classes of airmen are mixed in the headquarters of the squadron and work side by side. In the two flights they are separate, except where senior regular Warrant Officers and N.C.O.'s keep an eye on the work done in "B" flight.

The S.R. airmen are allowed to pick the trade which they wish to follow, when they enlist. Most of them stick to the trade which they follow in civil life, if it is applic-



THE BANKS OF LOUGH NEAGH : Three Vickers "Virgins" (twin "Lions") of No. 502 (Ulster) (Bomber) Squadron in formation above the great lough, by whose shores lies Aldergrove Aerodrome. (FLIGHT Photo.)



MECHANISATION: A "Virginia" is easily moved about when the tail has been raised on to a Shelvoke and Drury trolley. (FLIGHT Photo.)

able, and thereby afford a contrast to some Auxiliary squadrons, where the airmen like to learn a new trade. The squadron has a number of men who hold Post Office certificates for wireless. It is interesting to note that one such man joined as a wireless operator, but shortly afterwards remustered as a wireless operator-mechanic. He was not content to send and receive messages; he wanted to be able to repair the instruments as well. The engagement of a Special Reserve airman is for five years. Each undertakes to do the equivalent of a month's work in the year, as well as to go to the training camp, but, of course, most of them do far more than that.

It has been mentioned that on Wednesday afternoons there are compulsory games. The squadron is very keen on games, and they make for a strong *esprit de corps*. Sometimes the squadron has a Rugby XV, a Soccer XI, and a hockey XI all playing matches on the same day. Billiards are very popular, and the squadron enters two teams in the Antrim and District Billiards League. The Soccer XI plays in the Irish Alliance League. Brig. Gen. A. C. Lewin, C.B., C.M.G., D.S.O., has presented a cup for inter-flight games and sports, which promotes a healthy rivalry between the regulars and the Special Reserve. The squadron also has a sports blazer with a badge in red and black on a white ground, on which, of course, the Red Hand figures prominently.

Practically all the Special Reserve personnel are Irish, and it has been so arranged that about half the regulars in the squadron are Irish, too. In the mess one hears rich brogues, mixed with the more Doric accent of Ulster, while here and there an allusion to "Lock Neagh" marks the presence of a pure-blooded English officer.

Ireland, however, is a curious country. The officers and men of the squadron must not cross the frontier into

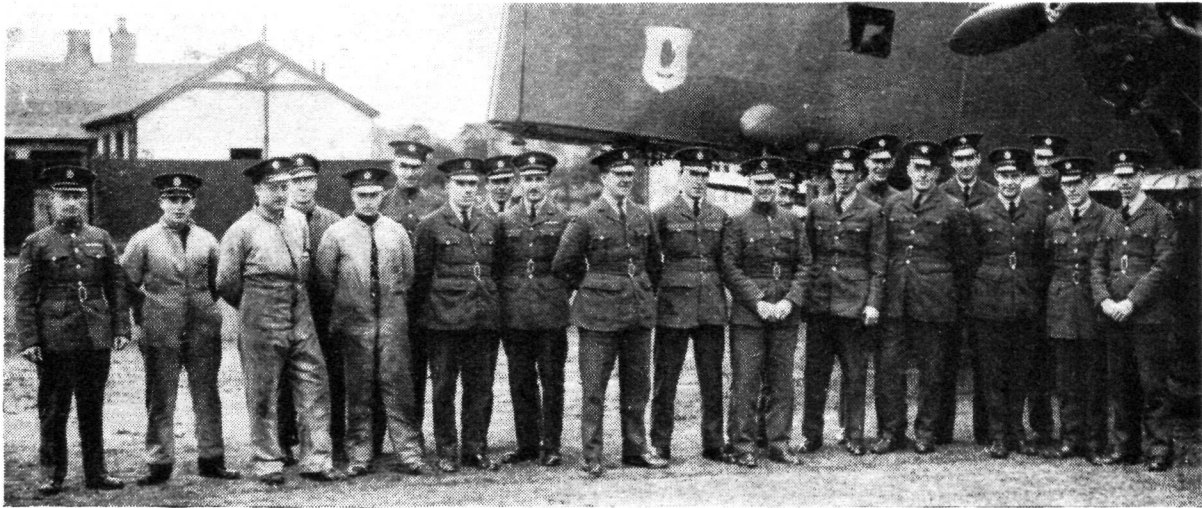


AB INITIO: The Special Reserve officers of No. 502 (Ulster) (Bomber) Squadron are taught to fly *ab initio* in the squadron in Avro "Lynx" two-seaters. (FLIGHT Photo.)

the Irish Free State in uniform. Likewise, they must not fly within 10 miles of that frontier. Consequently the great "Virginias" are rather cramped for flying room. The aerodrome at Aldergrove by the banks of Lough Neagh is large enough and, when not flooded, is good enough. But in all the Six Counties there is hardly another spot where a "Virginia" could land. The Six Counties are a very fertile tract, and are cut up into small



THE REGULAR FLIGHT: Names, left to right, F/O. G. E. Mustard; F/O. F. A. McNeill; Flt. Lt. J. H. Sender; Flt. Lt. H. K. Goode, D.S.O., D.F.C., Adjt.; Wing Com. L. T. N. Gould, M.C., Commanding Officer; Sqd. Ldr. H. E. Walker, M.C., D.F.C.; Flt. Lt. J. F. Taylor; F/O. J. K. Brew. (FLIGHT Photo.)



WARRANT OFFICERS AND N.C.O's. : Both the regular and the Special Reserve W.O's. and N.C.O's. of No. 502 (Ulster) (Bomber) Squadron are particularly smart and efficient men. (FLIGHT Photo.)

fields. Now the business of a night-bombing squadron is to make long cross-country flights, first by day and, when proficiency is attained, by night. All the officers of the squadron are fully trained as night-flying pilots. To be able to get scope for a long cross-country flight there is nothing for it but to fly across to Great Britain. Between Larne and Stranraer the Irish Sea is very narrow, and a landing ground has been arranged near Stranraer. So the crossing of this sea is quite a matter of course to No. 502 B.S., and when visiting squadrons or machines from Great Britain land at Aldergrove and begin to pat themselves on the back because they have flown right

across the Irish Sea, the pilots of No. 502, and especially the S.R. pilots, do a little quiet chuckle to themselves. The flying morale of this squadron is, in fact, extremely high.

The squadron is very popular in Ulster, and the officers hunt, dance, and take an energetic part in all the activities of a country where sport and work are both regarded as the proper duties of man. This means, too, that the best of the sporting young Ulstermen want to join the squadron, and those who do get commissions are all of the best. No. 502 (Ulster) (Bomber) Squadron is evidently a very happy affair as well as a very efficient unit.

Royal Air Force Squadrons

OTHER descriptive articles concerning the work of various R.A.F. Squadrons, etc., have been published in FLIGHT as follow:—

H.M. Aircraft Carrier *Glorious*. May 16, 1930.
No. 4 (Army Co-operation), South Farnborough; No. 17 (Fighter), Upavon; and No. 33 (Bomber), Eastchurch. June 27, 1930.
No. 601 (County of London) (B.) Sq., A.A.F. (at Lympne). August 15, 1930.
No. 43 (Fighter) Sq. (Tangmere). September 19, 1930.
No. 2 (Army Co-operation) Sq. (Manston). December 19, 1930.
No. 101 (Bomber) Sq. (Andover). April 24, 1931.
Nos. 240 and 209 (Flying-Boat) Sq. (Mount Batten). June 12, 1931.
"1890-1912-1931." (An outline of the Growth of the R.A.F.) June 26, 1931.
Cambridge University Air Sq. (at Old Sarum). July 10, 1931.
Central Flying School (Wittering). July 17, 1931.
Submarine Aircraft Carrier "M.2." July 31, 1931.
Oxford University Air Sq. (at Eastchurch). August 7, 1931.
No. 600 (City of London) (Bomber) Sq., A.A.F. (at Tangmere). August 21, 1931.
No. 605 (County of Warwick) (Bomber) Sq. (Cas. Bromwich). April 1, 1932.

No. 40 (Bomber) Sq. (Upper Heyford). May 13, 1932.
Nos. 7 and 58 (Bomber) Sq. (Worthy Down). June 10, 1932.
A visit to H.M.S. *Exeter* of 2nd Cruiser Squadron, Home Fleet. June 17, 1932.
Oxford University Air Sq. (Eastchurch). July 22, 1932.
Cambridge University Air Sq. (Netheravon). August 5, 1932.
No. 1 Air Defence Group (A.A.F. and Cadre Sqs.). August 12, 1932.
No. 100 (Bomber) Sq. (Donibristle). August 19, 1932.
Scotland's Auxiliaries; No. 602 (City of Glasgow) (Bomber) Sq. and No. 603 (City of Edinburgh) (Bomber) Sq. September 16, 1932.
London's Auxiliaries; Nos. 600, 601, and 604 B. Sq. October 20, 1932.
No. 25 (Fighter) Sq. (Hawkinge). December 8, 1932.
No. 19 (Fighter) Sq., Duxford. January 5, 1933.
Aircraft Carrier H.M.S. *Courageous*. January 12, 1933.
Lee-on-Solent. February 9, 1933.
No. 23 (Fighter) Squadron. March 2, 1933.
Gosport. The Fleet Air Arm Base. March 30, 1933.
Larkhill. R.A.F. Balloon Centre. June 8, 1933.
The R.A.F. Staff College, Andover. July 20, 1933.
No. 99 (Bomber) Sq., Upper Heyford. August 3, 1933.
No. 26 (Army Co-operation) Sq., Catterick. August 10, 1933.
No. 3 Flying Training School, Grantham. August 17, 1933.
No. 1 (Fighter) Sq. September 7, 1933.
No. 207 (Bomber) Sq. October 12, 1933.

Investigation of a civil air accident

THE INSPECTOR OF ACCIDENTS, Air Ministry, duly investigated an accident to an Avro 504-K aircraft, which crashed at Chard, Somerset, on April 30, 1933. The aeroplane was being employed for the purpose of giving pleasure trips and had made a considerable number of flights that day. Very shortly after the start of the last flight—when the aircraft was little more than 100 ft. from the ground—the engine suddenly ceased to function. The pilot thereupon attempted to turn back to the only large field within reach, but in avoiding a line of telegraph wires he accidentally stalled the aeroplane. The machine crashed to the ground and one of the two passengers received fatal injuries. As a result of his investigations, the Inspector of Accidents came to the conclusion that the engine failed through shortage of petrol in the main tank (the machine had not been re-fuelled since the commencement of flying that day) and that for this the pilot was alone to blame, he having failed in his duty to exercise reasonable precautions to ensure the safety of his aircraft in flight. The Secretary of State for Air suspended the pilot's licence for twelve months.

An honest thief

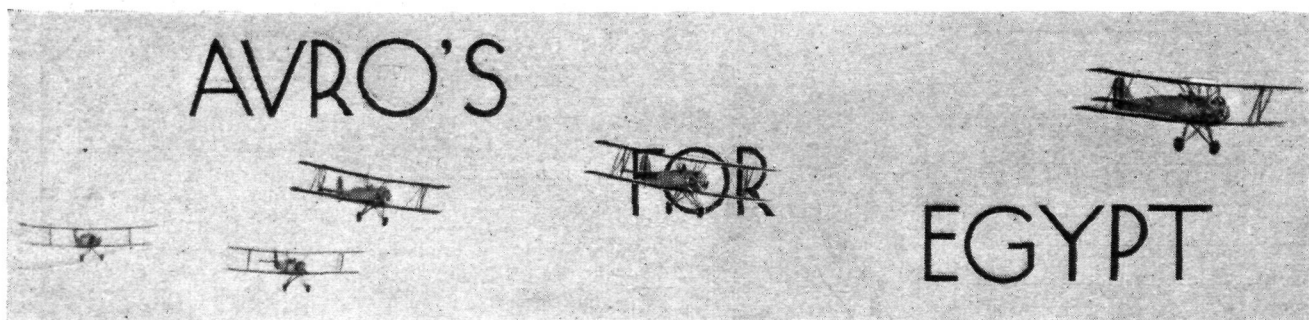
FIFTEEN maps, illustrating a flying route to Australia, have just been returned to the Vacuum Oil Company.

The maps, which are valued at over £30, but are, of course, useless except to the long-distance flyer, were—

as previously reported—stolen three weeks ago from a "Dragon Moth" belonging to Mr. H. J. White, of the Vacuum Oil Company, who was about to start on a long-distance flight. Now, through the A.A., to which they were addressed, they have been returned, still in perfect condition, in fifteen different wrappers. They bore postmarks in various districts of the E.C. and W.C. areas.

Northern travel

IN the issue of FLIGHT for November 9, there appeared in a paragraph, with the same heading as above, the passage: "According to Capt. Fresson, in order to operate a regular service (Orkney-Shetland) directional wireless would have to be employed and a navigator would have to be carried on each machine." Capt. Fresson writes to say that what he actually said was that in order to maintain a regular service through bad weather D.F. wireless, in his opinion, was essential; failing this it would be advisable to have a navigator on board who could accurately determine drift and take care of a dead reckoning course. There are, however, more days than otherwise that the journey could be flown without wireless or navigator quite safely. The same paragraph also contains the following "the operation of the route without substantial monetary guarantee would be impracticable," Capt. Fresson states that actually his opinion is that it would be necessary for assistance with regard to wireless beacons to make the undertaking worth while.



DURING the past two or three weeks eighteen officers and men of the Egyptian Army Air Force have been at Lympne getting used to flying Avro 626's. Ten of these machines, fitted with Armstrong-Siddeley "Cheetah V" engines, have been bought by the Egyptian Government for "General Purpose" duties. As the 626 is an aircraft without vice, and the Egyptian officers are extraordinarily keen, it was not many days before the squadron could put up a really good display of formation flying.

Last Tuesday H.E. Hafez Afifi Pasha, the Egyptian Minister in London, paid a visit to Lympne to inspect the machines and the personnel, and to wish the squadron "*bon voyage*," before its flight to Egypt with the new

were different from those on the five D.H. "Gipsy Moths" supplied to the Egyptian Army Air Force last year. The Egyptian flag was then painted on each machine, but on the new Avros there are green discs with the stars and crescents superimposed.

The two flights took off in formation for their display, which naturally consisted of "straight" flying only. After flying to and fro over the aerodrome in "V" formation two or three times, the flight of five changed formation into line astern and did a really spirited dive past. It is a pity that one of the machines did not give the Egyptian Minister a display of aerobatics to show him what an excellent all-round type Egypt is buying. The larger flight made a good landing in formation. H.E.

Hafez Afifi Pasha was obviously impressed by what he saw.

Among the personnel who are flying the machines to Egypt are two officers specially seconded from the R.A.F., Sqd. Ldr. V. H. Tait and Flt. Lt. S. N. Webster, or, to give them their Egyptian ranks, Kaimakam Tait Bey and Bimbashi S. N. Webster. Five British warrant officers are with them. From the Egyptian Army Air Force comes seven officers, three N.C.O.'s and a wireless operator. The Avros are flying to Cairo, by way of Paris, Marseilles, Rome, Sicily, Tunis, Tripoli, Benghazi and Mersa Matruh.

It seems that the 626's have some hard work in front of them. They will be used for flying training, anti-smuggling work, photography and the survey of the S.W. Egyptian desert, with a view to establishing landing grounds.

The machines for Egypt are fitted with Smith's instruments, Fairey metal airscrews and Dunlop wheels using Bendix brakes.

It is with regret that we have to report that two of the machines crashed, in fog, on their way to Paris on November 18. One machine crashed at Moncmaux and both occupants, Mr. Haggag and Mr. Dors, were burnt to death. The other machine crashed near Wisnes-au-Val, and also caught fire, but pilot and passenger escaped unhurt.



THE INSPECTION: The Egyptian Minister and Kaimakam Tait Bey inspecting the pilots under Bimbashi Webster. (FLIGHT Photo.)

equipment. A day before the inspection two of the machines met with mishaps, so that only eight could be put into the air, operating in two flights, one of five and one of three.


There was a delightful newness about everything at Lympne on Tuesday. The 626's, fresh from the Avro works, looked really handsome in their fresh coats of Cellon and their green markings, and the eight pilots wore brand-new flying suits of identical pattern and colour. Incidentally, we noticed that the markings on the machines



THE FLIGHT INTO EGYPT: The new equipment of the Egyptian Army Air Force. (FLIGHT Photo.)

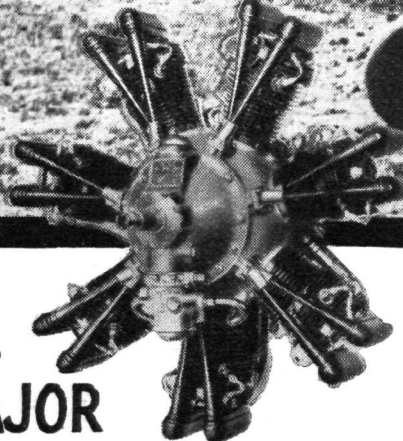
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THE LOG OF THE ASTRAEA



Extracts from an article in "Flight" of a journey from Australia to England with Imperial Airways by Hudson Fysh.

"Travel on the Astraea is not only a time-saver, but a delight. 391 miles in 3 hours 25 minutes. . . .

It had been a satisfactory day, 914 miles being covered in 7 hours 35 minutes, assisted by a quarter following wind.

The flight is calm and comfortable and the cabin is delightfully cosy and roomy. This excellent machine, with its four reliable engines, gives a feeling of complete confidence—knowing that if one engine fails the machine can climb and maintain good speed and if two engines go the flight could be continued with only an almost imperceptible loss of height. . . ."

Sir W. G. Armstrong Whitworth Aircraft Limited
Coventry, England

BP357

THE**TIGER MOTH****FOR****MILITARY FLYING TRAINING**

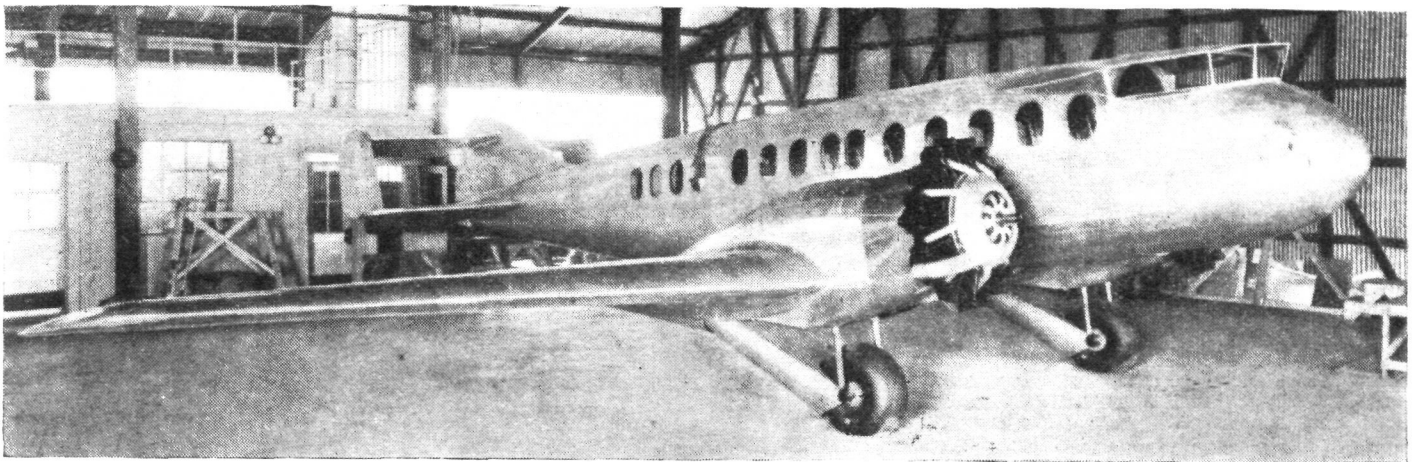
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AIR TRANSPORT AND COMMERCE



A NEW AMERICAN AIR LINER : The Capelis all-metal commercial monoplane, described below.

THE CAPELIS COMMERCIAL MONOPLANE

AMERICAN aircraft operators have shown a pronounced partiality of late for high-performance 12-14 seater aircraft. The past few months have seen the production of the Boeing 247, Douglas D.C.1, and Lockheed "Electra" low-wing monoplanes. High speeds are obtained in these machines by exceptionally clean aerodynamic design, retractable undercarriages and the use of the latest types of geared and supercharged American radial engines with low-drag cowlings and new types of variable-pitch metal airscrews. Safety and noise reduction have also received special attention. The newly-formed Capelis Safety Airplane Corporation, Ltd., of Oakland Airport, California, has produced an addition to the range of the aforementioned types, and details, which we are able to publish through the courtesy of *Shell Aviation News*, are given hereafter, as follows:—The machine is a twelve-passenger, all-metal low-wing monoplane with a fuselage of full monocoque construction. Two 550-h.p. Wright "Cyclone" engines are fitted to the first machine, but other power units of similar type may be used if desired. The junction of wing and fuselage is "cushioned" with rubber to absorb vibration, and the two structures may be separated by the removal of a few bolts. Landing gear of ingenious design is employed, the two main wheels and the tail wheel being either manually or electrically retracted. They are automatically lowered when either of the throttles is closed. When the wheels are "up," the rear undercarriage struts form streamline fairings behind the small portions of the wheels which protrude below the wing. A slight variation of the camber of the trailing edge of the wing may be made to obtain longitudinal balance. Frise ailerons are fitted for control at low speeds, and the two rudders are placed one behind each engine to obtain the full effect of the slipstream. "Sandwiched" between the double walls of the cabin is sound-absorbing material, and safety glass is used throughout. Ventilation is controllable from each seat. The petrol tanks are carried in the lower part of the fuselage, and may be dropped in an emergency. At a gross weight of 8,000 lb., the machine has an estimated cruising speed of 200 m.p.h., the top speed being 230 m.p.h. and landing speed 63 m.p.h.

WINTER SCHEDULES OF ITALIAN AIR LINES

ITALIAN companies will operate the following 23 routes, with certain reductions in frequency, during the winter.

Società Aerea Mediterranea (S.A.M.)—Rome-Cagliari, daily; Rome-Tunis, thrice weekly; Cagliari-Tunis, weekly; Palermo-Tunis, thrice weekly; Rome-Venice-Munich, daily (in collaboration with Deutsche Luft Hansa); Venice-Vienna, thrice weekly; Rome-Bari-Brindisi-Tiranë-Salonica, thrice weekly; Tiranë-Skudrë (Scutari), thrice weekly; Tiranë-Vlonë (Valona), thrice weekly; Tiranë-Korçë (Koritza) thrice weekly.

Società Italiana Servizi Aerei (S.I.S.A.)—Trieste-Zara-Lagosta-Brindisi, daily; Ancona-Zara, daily; Fiume-Brione-Venice, thrice weekly; Portorose-Trieste-Venice, daily.

Società Aero-Espresso Italiana (A.E.I.)—Brindisi-Athens-

Rhodos, weekly; Brindisi-Athens-Istanbul (Constantinople), weekly.

Società Anon. Navigazione Aerea (S.A.N.A.)—Genoa-Rome, daily; Rome-Naples-Palermo, daily; Rome-Naples-Syracuse-Malta-Tripoli, thrice weekly; Genoa-Marseilles-Barcelona, thrice weekly.

Avio Linee Italiane (A.L.I.)—Rome-Milan, daily.

Nord-Africa Aviazione—Tripoli-Bengazi, thrice weekly; Bengazi-Tobruk, weekly.

Special freight services will be operated daily on the Milan-Verona-Padua-Venice route. The Milan-Turin, Milan-Zurich, Rome-Berlin (direct), Venice-Pavia-Turin and Milan-Trente-Innsbruck-Munich connections have been temporarily suspended. In spite of the winter a regular service will be maintained over the Alps between Venice and Munich.

AN ITALIAN UNSUBSIDISED SERVICE

AN unsubsidised aerial freight service is being maintained between Milan, Verona, Padova, and Venice. It is operated daily, with single-engined Caproni 97 machines.

CZECHO-SLOVAK SERVICES

THE two summer services run by the Czecho-Slovak Air Lines (a private firm distinct from the State Air Lines) have this year carried 50 per cent. more passengers than last year. The service Prague-Leipzig-Amsterdam, which is conducted by the Czecho-Slovak Air Lines alone from April 1 to October 7 was this year utilised by 3,012 passengers, compared with 1,864 in 1932, an increase of over 60 per cent. The new machine, "Avia 51," of the State Air Lines, recently did the flight from Prague to Brno in 49 min., which represents a speed of 236 kilometres an hour. This machine, which is wholly of Czecho-Slovak make, is to be flown on the new service which is to connect Prague and Marseilles (via Geneva) in 6 hours.

PROGRESS WITH THE DERULUFT

THE 1933 programme of Deruluft ended on October 31. For the previous nine months they carried through a daily service over the Baltic States between Germany and the U.S.S.R. Once again there was no accident or noteworthy damage to the aircraft, and the programme was even more regular than before. This is particularly creditable when the length of the main lines is considered, that between Berlin and Moscow being 1,045 miles (1,682 km.), and between Berlin and Leningrad 986 miles (1,586 km.). During the months of November and December the services are withdrawn for meteorological reasons, and the winter service on the line between Berlin and Moscow starts again on January 1, 1934. This will run daily, including Sundays, throughout January, February and March, with three-engined aeroplanes. The start from both ends, according to the time-table, will be 7 a.m., so that the 11-hr. journey will be completed by the early evening. Particularly remarkable is the increase in the traffic during the past year. The number of passengers carried has risen by 61 per cent., the amount of mail by 24 per cent. and the amount of freight and goods by 57 per cent.

THE LOG OF THE "ASTRAEA"

Australia to England by Air with Imperial Airways

By HUDSON FYSH (The Managing Director of Qantas, Ltd.)

(Concluded from page 1152)

July 21, 1933

WE were now 11 days out from Darwin and commencing the long stage to Cairo.

4.10 a.m.: Took off from Baghdad by the aid of aerodrome floodlights and flares.

5.30 a.m.: Wake up from a sleep to see that day has just broken. One thinks if only the people of Australia could experience such a trip as this, what an extra impetus for adequate air travel would be obtained. Those countries which first realise the advantages of air travel and transport will reap the greatest benefits.

7.40 a.m.: Landed at Rutbah Wells. Another fort—most interesting. Had an excellent breakfast. Was amused at the Arab guards. One fellow asleep in a big fodder bag.

8.50 a.m.: Took off from Rutbah Wells into a very strong headwind.

10 a.m.: After another sleep woke up to find the *Hannibal* was flying low over desert country—not a tree to be seen. Saw numerous gazelles, herds of camels and several foxes.

11.0 a.m.: Passed over an old Roman fort, where Imperial Airways have an emergency supply of petrol, and a landing ground. Every emergency is provided for on this well-organised route. We are nearing Palestine.

12.25 p.m.: Passed over Ziza and saw Amman in the distance.

12.45 p.m.: The Dead Sea with its cliff-lined shores shines below. To the north is seen the River Jordan, Jericho and the fabled Mount of Temptation. To the west, through the sheen of a fast revving propeller, is seen Jerusalem and Jericho. Soon we fly over Bethlehem.

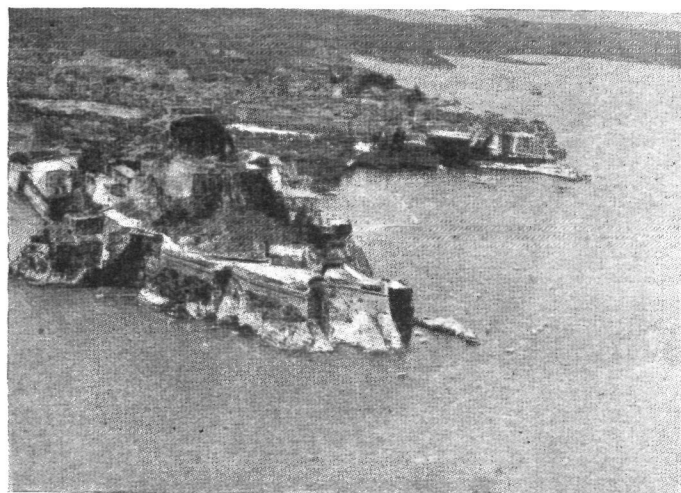
1.20 p.m.: Landed at Gaza—impossible! The well-appointed Imperial Airways aerodrome and rest house is on the east side of the town within a few hundred yards of the famous Ali Mustar Redoubt, so well remembered by Australians in the Gaza battles. Fragments of high-explosive shell can be picked up almost anywhere on the aerodrome. The old cactus hedges are there. The outline of trenches used sixteen years ago can still be plainly seen from the air where the ground has not been cultivated. What a memory this brings back to the Australian Light Horse and Flying Corps.

At 2.45 p.m. the *Hannibal* took off from Gaza for Cairo and after a very pleasant journey down the coast landed at 5.15 p.m. Baghdad time, 4.15 Cairo time. We had flown 818 miles in 10 hr. 30 min. in strong headwinds.

SECTION V.—CAIRO—LONDON

After having left Darwin on the morning of July 10, the afternoon of the 21st saw us arrive at Heliopolis (Cairo). We were fifteen passengers, 2,017 lb. of mail also being carried—what an answer to the critics who say this section of the service is not proving worth while.

On alighting from the *Hannibal* we were ushered through Customs and completed passport formalities with a minimum of trouble. Anyone who has travelled knows



ISLE OF GREECE: An aerial view of the beautiful Isle of Corfu.

the troubles of landing in a strange land and the assistance that is necessary unless a rough passage is to be experienced. Different language. Different currency. Different customs. A multitude of embarrassing situations is met with. Imperial Airways, in their well-thought-out organisation, make provision for everything, from their currency coupons in small denominations to assistance with Customs and passports, and a staff to see passengers from aerodrome to hotel and from hotel to aerodrome.

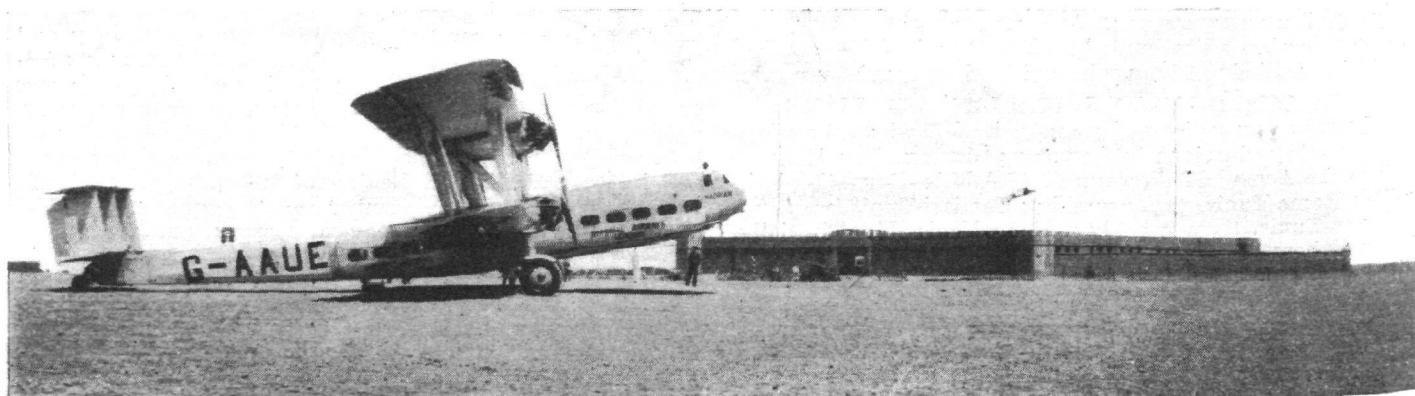
The Imperial Airways' organisation at Heliopolis can only be described as a hive of industry. This is the important junction of the Calcutta-Cairo and the Capetown-Cairo service. A visit to the engine shop discloses engines in various states of overhaul and a completed engine being run up on the test bench. In another department aircraft are undergoing repair and overhaul.

After afternoon tea at the Continental Hotel, we caught the evening train to Alexandria, and so finally to bed in the comfortable hotel after a long day full of interest. From Baghdad to Alexandria was indeed a long stage.

July 22, 1933

Up again at 4.0 a.m., and at 5.25 a.m. we were moving down Alexandria Harbour in the *Satyrus*, a "Scipio" class flying boat powered by four Bristol "Jupiter" engines.

This was again to be a new experience, and one was anxious to see if this cross-Mediterranean service by flying boat was such an excellent trip as had been generally claimed. "But wait till you fly on our Mediterranean service" had been the advice. The comfort of the *Astraea* had been exceeded by the *Hannibal*. Was the *Hannibal* to be eclipsed? It did not seem pos-



FROM MONOPLANE TO BIPLANE: From Karachi the journey was continued in *Hannibal*, of the Handley Page 42 class, similar to *Hadrian* shown above.

A FULL COMPLEMENT: Passengers emplaning in a Handley Page at Paris en route for London.

sible, yet it was so, though there was little to choose between *Hannibal* and *Satyrus*. Yet the people of Australia looked on the *Astraea* as a huge machine, and its size gave the impression that such a craft was perhaps too large for the Australian service. The critics definitely said so. Yet the *Hannibal* lifts more than double the payload of the *Astraea*, and further is definitely carrying that load.

Leaving Gaza on the *Hannibal*, the petrol supplies had to be juggled in order to allow the pay load offering to be lifted. Now, leaving Alexandria, at least one definite passenger had to be turned away in order to keep within the weight limit. Petrol could not be juggled here owing to a strong headwind being predicted.

We left Alexandria with twelve passengers and 1,815 lb. of mail. The *Satyrus* proved very comfortable indeed, and as one sat back in the comfortable lounge chair provided and gazed out on the rapidly passing water (we were flying very low against a strong headwind) it was hard to realise that one was not on some sumptuous private yacht, except that the motion of the sea was absent. Is it any wonder that this service has been booked to capacity for months? One could do nothing else but realise intensely the progress of commercial aviation. Surely it was proving a success in such conditions, and what of the next step? On reference to *Satyrus'* autograph book, we ascertained that the Prince of Wales and the Duke of York had flown in this machine and had highly enjoyed their trip.

After a long trip over the sea we finally landed at Mirabella, in the Island of Crete, where fuel and oil were taken on. Some of the passengers got into bathing togs and enjoyed a swim. They rated it splendid, and after we were under way again were more than ready for the excellent lunch which was served aboard.

Athens next, and it was hard to be confined to the Rest House and Customs enclosure whilst refuelling was in progress, and to see on the close Athenian sky-line some of



the famous ruins of Ancient Greece. Athens Harbour and foreshore were very beautiful. Two passengers alighted and two more were taken on here. Soon the *Satyrus* was on her way again.

The trip from Athens to Brindisi surpassed in beauty any portion of the trip from Australia, although the mountains and coast of Lombok had been well worth seeing. One by one the scenic beauties already known to one had been surpassed till the only things Australian which still reigned supreme were the New South Wales beaches, probably the finest in the world.

Before Athens we had passed Milo, the original home of the Venus of Milo. Now we were flying up the Gulf of Corinth—on through the Isles of Greece. The indescribably blue water of the open bays was bordered with the palest blue where the water shoaled off to meet the rocky and timber-clothed hills, which changed colours as the cloud shadows floated past. Little white walled villages nestled on the hillsides. Was it this magnificent blending of colour which inspired the poets of old?

Soon we had passed the Island of Corfu, one-time beloved residence of the Kaiser, and the Italian coast came into view. All cameras were now collected and placed in a sealed bag, not to be opened till Customs were passed in Brindisi. Regulations laid down that the harbour must be entered flying on a prescribed course past the fort. A landing being effected in the harbour opposite the imposing Italian naval air base, we were quickly ashore, and after passing Customs boarded a motor boat which took us almost to the door of the Grand Hotel. An Italian dinner and we were off by train on the long trip to Paris.

One mentioned that the Imperial Airways staff seemed large at Brindisi. Such questions are usually asked in ignorance, and those who criticise the operations of this large company should carefully consider the magnitude and routine of the work which is being carried out. Not so long ago 51 persons—all Imperial Airways passengers—sat down to dinner at the Grand Hotel at the one time.



THE HEEL OF ITALY: An aerial view of Brindisi, the terminus for the overseas route from Alexandria.

This sort of thing takes a lot of handling if arrangements are to go off well, and Australians are assured that, unfortunately, trans-shipments of passengers, freight and mails, all of which Imperial Airways are responsible for, present a very different task in a foreign country than in one's own. All kinds of difficulty are encountered and complications are heavy when a plane arrives in too late to make a train connection. It has been found impossible to make suitable emergency arrangements beforehand. Constant negotiation is necessary to keep things going as efficiently as they are. Australian operations are simplicity itself compared with international travel by aeroplane which is but newly established.

The comfortable Wagon-Lits carriage with its single-berthed sleepers was well in advance of Australian train travel in several respects, but it suffered considerably in comparison with the air travel which we had just experienced, with its long interesting trips by day and comfortable hotels by night. The train was definitely more noisy; there was more vibration and more lurching; and the dust, soot and heat were absent on the plane. People are popularly supposed to be sick travelling by air, yet travelling on the large Imperial Airways machines not one of the passengers between Australia and England was sick, and they all partook of hearty meals on board.

One striking feature of the Italian train service was the miraculously short period at each station. Everything appeared to work like clockwork, and the Italians appeared most efficient.

Rather a wonderful two hours were spent in Milan. The huge new railway station appealed as to art, impressiveness and efficiency. Milan's other places of interest, however, paled into insignificance beside the cathedral, like a huge wedding cake outside—perhaps overdone—but the interior leaving one without words to describe its impressive beauty. The Opera House, it being Sunday, was closed, and the famous wall painting of the Last Supper was not seen. Our temperamental Italian car driver seemed to have his views as to what we should see.

The Italian lakes, a little bit of Switzerland, before it got dark, greatly impressed—and so on to Paris and the last stage of the long trip.

On arrival in Paris we were met by the usual Imperial Airways representative, who ushered us through Customs, and then by the company's comfortable charabanc to the Lafayette Hotel, where excellent coffee and rolls were served.

Reluctantly we boarded the aerodrome bus, which was

soon making its way over the rather unevenly paved streets towards Le Bourget. The aerodrome was a busy place; even at 8.30 a.m. French military machines stood in neat lines with their engines ticking over ready to take the air in formation, while a number were in the air. One counted between 35 and 40 hangars on the aerodrome. Civil aircraft arrangements, if not imposing, looked efficient. While our luggage was being transferred from the bus to the waiting air liner we watched a triple-engined Luft Hansa machine being loaded up, and then start on its way to Berlin. A little farther down the tarmac stood four French commercial aircraft, including their latest three-engined machine which is said to be extremely fast if not very efficient.

The "Heracles" class machine in which we were to make the crossing to London is Handley-Page built, and has seating accommodation for 38 passengers, besides the crew of four. The wing span of this huge machine is 130 ft., and the length 86 ft. 6 in. Its height is 27 ft. 3 in. It is driven by four Bristol "Jupiter" engines of 550 h.p. each, with a cruising speed of 105 m.p.h. On entering the machine, two cabins are discovered, one forward and one aft. In front of each comfortable seat is a small table which is used for writing or as a dining table. Overhead are racks for small luggage and hats. In between the two cabins are the mail and luggage compartments, the steward's pantry and two lavatories. The general comfort of the machine and the absence of noise are very striking.

Soon we are away, 25 passengers being aboard, and flying over the pleasant fields and woods of France. We had left on the tick of 9.0 a.m. Flying over the French coastline we headed over the Channel at 3,800 ft. with the air speed indicator showing 100 m.p.h. An excellent breakfast was served. The London-Paris machine flashed past flying at an even height. Things happened quickly in the air. Fog appeared below, just a broad band of grey, low on the sea, but sufficient to hold up a steamer which we saw hove to below. Probably that steamer would arrive in port several hours late, but nothing would be thought of it, while delays to air services have a habit of being severely criticised.

At last we are over England and already getting our things together in anticipation of the landing at Croydon. The English countryside on this beautiful morning looked at its best, with crops being harvested, and smoke rising lazily from village chimneys.



SATYRUS: The journey from Alexandria to Brindisi was made in this Short "Scipio" class flying-boat—here seen at rest on the Sea of Galilee.

Some British Triumphs with NAPIER Aero Engines

1918 A Napier-engined D.H. aeroplane climbed to a height of 30,500 ft. in 66 min., the greatest height at this date reached by an aeroplane.

1919 A Napier engined D.H. aeroplane won the Aerial Derby. Speed, 129.3 m.p.h.

1921 A Napier engined Gloster aeroplane won the Aerial Derby. Speed, 163.4 m.p.h.

1922 A Napier-engined Supermarine flying boat regained the Schneider Trophy for Great Britain at a speed of 149 m.p.h.

1923 A Napier-engined Gloster aeroplane won the Aerial Derby. Speed, 192.4 m.p.h.

1926 The first non-stop crossing of South Atlantic Ocean carried out by Com-mandante Franco flying a Dornier flying boat with two Napier engines.

1927 Schneider Trophy regained for Great Britain by a Supermarine-Napier sea-plane flown by Ft.-Lieut. S. N. Webster, A.F.C. Speed, 281.669 m.p.h. Two machines completed the course—both fitted with Napier engines.

1928 The greatest formation flight ever carried out was made with four Super-marine-Napier Southampton flying boats, each fitted with two Napier engines. The machines flew from England to Australia, round Australia, and back to Singapore, covering 180,800 engine miles without mechanical trouble.

1929 The first non-stop flight from England to India was carried out with a Fairey monoplane fitted with Napier engine. 4,130 miles in 50 hr. 38 min.

1930 For the fifth successive year Napier engines were selected by the Royal Air Force for their annual Service flight from Cairo to Cape Town and back. As on previous flights, no mechanical trouble was experienced.

1931 The first and only non-stop flight from England to Egypt was carried out with a Fairey monoplane fitted with Napier engine. 2,857 miles in 30 hr.

1932 Captain Sir Malcolm Campbell set up a World's Land Speed Record of 253.968 m.p.h. with his Napier-engined "Bluebird" car.

1932 Fourteen officers and 534 men were transported from Ismailia to Iraq and back—a distance of 1,728 miles over nearly waterless desert. The aircraft used were Vickers "Victoria" troop carriers, each fitted with two Napier Lion engines.

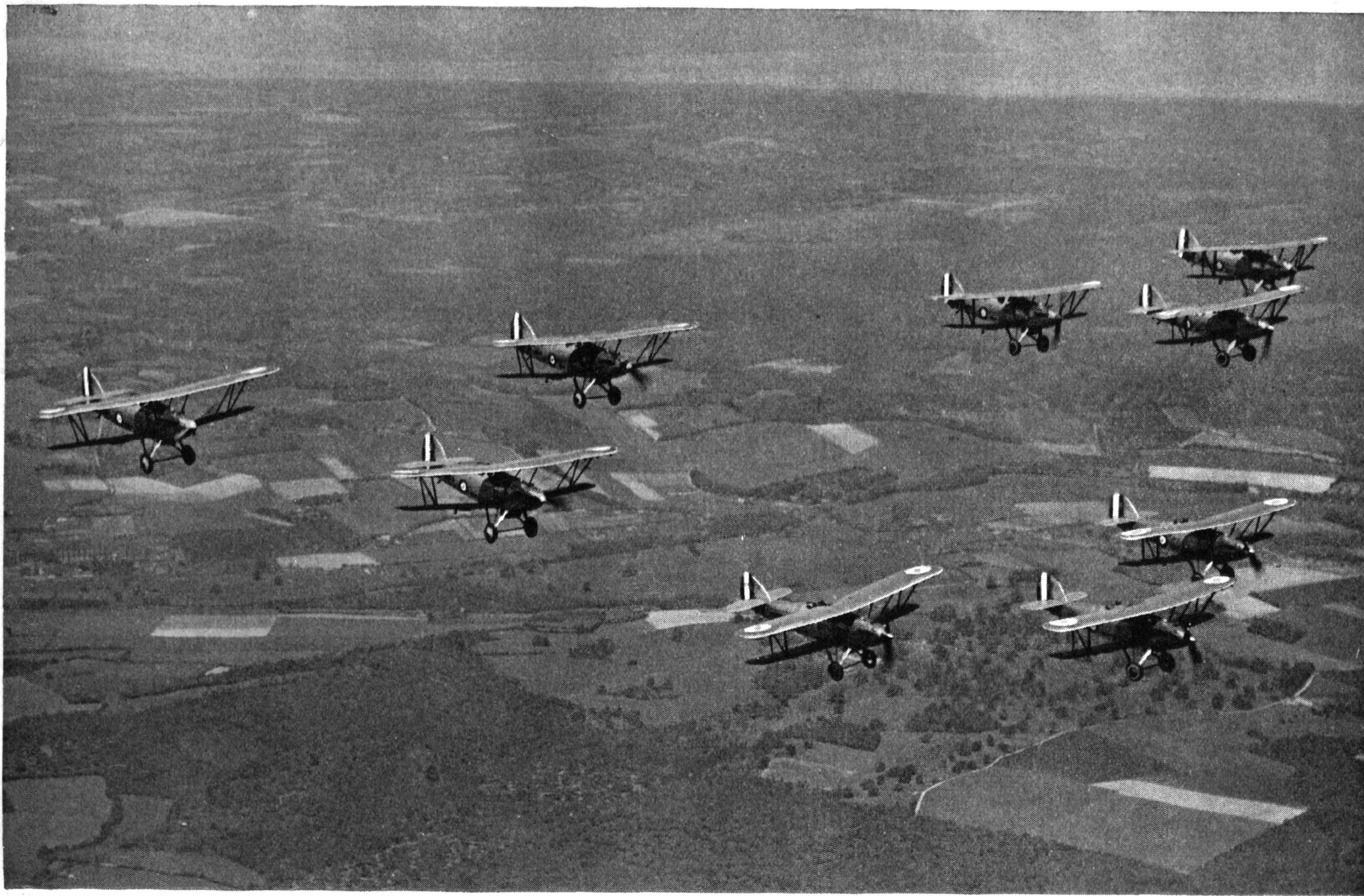
1933

Squadron-Leader O. R. Gayford, D.F.C., A.F.C., and Flight-Lieut. G. E. Nicholetts, A.F.C., by flying a Fairey (Napier) monoplane from Cranwell, England, to Walvis Bay, South-West Africa, set up a World's long distance non-stop flight record—a distance of 5,309 miles covered in 57 hr. 25 min.

NAPIER

ENGINES

D. NAPIER & SON, LTD., ACTON, LONDON, W.3



DAY BOMBERS: No. 33 (Bomber) Squadron in Squadron Formation. The Machines are Hawker "Harts" with Rolls-Royce "Kestrel" Engines.
(*"Flight" Photo.*)

Advt.

Croydon at last, and the taking of a cinematograph picture from the cabin window showing the wheels touching English soil. The landing was made exactly on time at 11.15 a.m., on July 24. The schedule from Calcutta had been faithfully kept, and we were in England 14 days out from Darwin.

CONCLUSIONS

The final diary note reads:—"Well here we are in London town—the greatest, the most stable, and the most sincere city in the world. Why was it that the British £1 note was accepted without question by all nationalities right through the journey? Not one other currency in the world would have been so accepted. A scrap of paper! but it represented the promise of England—that promise has always been honoured and the world knows it."

A week in London has only served to strengthen this opinion. There is an air of quiet prosperity and sincerity which is productive of confidence, and makes an Australian proud to feel that the far Antipodes is a loyal part of the Empire.

In finally considering the trip flown between Australia and England several points instinctively force themselves to the front. Firstly, one is struck with the fine Empire building work being carried out by Imperial Airways in the face of great difficulties of an international nature. The difficulty of scheduled organised operations over a succession of countries—France, Italy, Greece, Egypt, Palestine, Iraq, Arabia, and India—has to be seen from the inside to be realised, and the fact that Imperial Airways have accomplished as much as they have has only been the result of constant persistence. Imperial Airways carry the modern flag of Britain into the remote lands, linking the Empire with new bonds. That their work is being well and truly done, with a constant eye to the future, was evident.

The rapid conveyance of mails by air undoubtedly takes first place in the service rendered by these Empire services, but the conveyance of passengers is surely also a very important service. Some years ago, Imperial Airways boldly embarked on their policy of adequate passenger carriage by air and were greatly criticised in some quarters for the large outlay thus entailed. The facilities for comfortable well-served passenger traffic had to be offered first if any progress was to be made. To-day we see the complete vindication of this policy in the huge passenger

traffic which has been built up. A 91 per cent. increase in the last 12 months on the London-Paris service alone, 15,000 passengers having crossed the Channel by Imperial Airways since April 1 last. On many services it is quite impossible to obtain seats unless bookings are made weeks before. A large staff is necessary to handle this big traffic, and the administration and operation of services which stretch from London to Cape Town and Calcutta.

What real service is accomplished by the carriage of passengers to and from far-away places of the Empire? One might well compare air mail planes without passengers with P. & O. liners carrying mails only. In general the same laws apply to all forms of transportation.

A further striking impression of the journey from Australia to England produced by the rapid passage from country to country, and the fact of actual arrival in London 14 days out from Darwin, was the lonely isolation of Australia when most other countries of the same size in population are now linked with at least one of the world's great centres by aerial transportation. Australia is surely very isolated, and the fact that here in London one will have to wait a month to get a letter out to Australia and another month to receive a reply means isolation indeed. All this will be removed on the inauguration of the Australian air service link.

The final thought is one of the necessity for co-operation. Empire co-operation, and lastly in the future world co-operation. This again is brought home by the rapid passage from country to country and the natural difficulties experienced in doing this. It also makes its insistent appeal in a different way in specific regard to England and Australia by the realisation that the new air line is going to bring the two countries much closer together, and when any working units come close together, co-operation is the essential for smooth running. This in particular applies to the actual operation of the new air line from London to Brisbane or Sydney. That Imperial Airways by the very fact of its position in London, its technical knowledge, and its financial stability, can assist tremendously in the operation of this important Empire line is beyond question. In fact, its connection with the service amounts to a guarantee of good service and that progress in the future which will only be obtained by solidarity of finance and the closest connection with the manufacturers and technicians of Europe.

SEADROMES

THE Public Works Administrator of America, Mr. Ickes, is considering the possibility of making a State grant towards the building of floating Armstrong seadromes. These will consist of a top-landing deck of about 1,000 ft. by 300 ft. raised 100 ft. above the sea. The whole structure would be supported by buoyancy tanks floating beneath the surface, and would be anchored to the sea bottom. It is estimated that the population of one of these islands would be round about 125 persons, and there would be an hotel capable of accommodating some 300 souls. One of such seadromes would cost somewhere in the nature of 30 million dollars (£6,000,000). We have heard quite a lot about these seadromes from America, but so far nothing definitely constructive has been done. In the meantime, Germany has placed the *Westfalen* in mid-ocean, which, although quite a different proposition, appears to be more tangible; anyhow, it is some definite accomplishment.

AIR TRANSPORT IN EAST AFRICA

DURING the period June 1, 1932, to May 31, 1933, Wilson Airways, Ltd., have flown over 2,300 hours. While this shows a considerable increase over the previous twelve months, perhaps the most interesting point to note is that, whereas in the previous year 85 per cent. of the hours flown were in the nature of pleasure flights, that is, carrying safari parties, tourists, residents on holiday, etc., and 15 per cent. in the nature of business flights; during the latter period 48 per cent. of the hours flown were in the nature of pleasure flights and 52 per cent. in the nature of business flights. This makes it clear that the business community is becoming more and more aware of the value of air travel as a speedy and economical method of transportation. During the past twelve months both the equipment and the personnel have been considerably increased. Starting the year with two "Puss Moths," one "Gipsy Moth," two pilots and two ground engineers, the end of the year sees the company operating with four "Puss Moths" and two "Gipsy Moths," four pilots and four

ground engineers. Granted the return to normal prosperity by East Africa, it is certain that this fleet would be considerably increased both in size and numbers of aircraft.

In September, 1933, Wilson Airways added to their fleet a machine which will set a new standard of luxury and comfort in East African air travel. It is the latest model de Havilland "Dragon," capable of carrying ten passengers; but in order to give increased comfort, Wilson Airways have had it rigged for six passengers only, thus enabling the most comfortable type of chairs to be fitted, leaving ample room for baggage and mails. The "Dragon" will normally be employed on the coastal service, where the need of a larger machine has been apparent for some time. Messrs. Wilson Airways are also importing another "Puss Moth."

Dar-es-Salaam Branch.—This branch was opened on June 15, 1933, and the fleet consists of two 2-passenger cabin machines, one instructional machine, two pilots and the necessary ground staff. While one of the cabin machines is to be available for Government work at 24 hours' notice, there will always be the other machine available for commercial flying. The value of this to residents of Tanganyika in these days, when flying is considered as a normal and economical method of travelling, cannot be exaggerated. Smith, Mackenzie & Co. act as Wilson Airways, Ltd.'s agents in Dar-es-Salaam and Zanzibar.

A CASABLANCA-ORAN AIR LINE ?

IN addition to the air line which the Société des Transports Aériens Français is contemplating between Casablanca and Oran, M. André Garric has his plans completed for such a line, to be operated without any subsidy from the State. M. Garric states that he proposes to use a de Havilland "Dragon," and that he is only waiting to get the sanction from the Air Ministry to begin operations. It would appear that M. Garric is a sort of French Mr. Hillman, and as such we wish him well in his undertaking, not forgetting that he is showing good judgment in choosing a British machine.



AUSTRALIAN-BUILT AIRCRAFT : The "Lascondor" (left) and the "Lascoter" (right) built by the Larkin Aircraft Supply Co., Ltd., of Melbourne. The former is a seven-seater fitted with three Armstrong-Siddeley "Mongoose" engines, and the latter is a three-seater fitted with a Siddeley "Puma" engine.

AUSTRALIAN-BUILT AIRCRAFT APPROVED

LAST September the Controller of Civil Aviation (Capt. E. C. Johnston) issued Type Certificates of Airworthiness to the Australian designed and built commercial saloon monoplanes the "Lascoter" and the "Lascondor," which are being operated by Australian Aerial Services, Ltd. The "Lascoter" is a single-engined five-seater, metal-fuselaged monoplane, whilst the "Lascondor" is a three-engined machine of almost identical design. The parts of the two machines have been standardised to such an extent that it is possible to convert a single-engined machine into a three-engined model, and *vice versa*, within 24 hours. These machines have been placed in service for the carriage of North Australian mails from Camooweal, across the Brunette Downs, to the overland telegraph line at Daly Waters. They were built in the aircraft factory at the Larkin Aircraft Supply Co., Ltd., at Melbourne Airport. The report of the Superintendent of Civil Aviation (Flt. Lt. D. Ross), who carried out the official flying trials, states that both machines "handled well, and no difficulty was experienced in quickly attaining flying position in taking off and executing normal, tail-down landings. The controls are light and effective throughout the speed range of the aircraft, which are pleasant and easy to fly." Referring to the three-engined "Lascondor," the report reads: "With any one engine throttled back the aircraft easily maintains height at an altitude of 5,000 ft., with full load, and no difficulty is experienced in holding the aircraft on its course with either of the wing engines out of action."

THE FRANCE—MADAGASCAR ROUTE

AN expedition under Capt. Girardot is planning an aerial survey, in three sections, of the "Empire" route between France and Madrid, using an Amiot machine. It is hoped that a service will be in operation in 1934.

POLISH WINTER SCHEDULES

THE Warsaw-Reval (Tallinn) and Warsaw-Salonica services, operated by the PLL "Lot," were suspended for the winter on November 1. The Warsaw-Vienna and Warsaw-Bucharest services will, however, be continued.

THE CLARK GA-43 COMMERCIAL MONOPLANE

A MODIFIED version of the Clark GA-43 ten-seater monoplane supplied to Swissair, which was described in FLIGHT for March 2, has been built by the General Aviation Manufacturing Co. of Dundalk, Maryland. The fuselage structure has been completely redesigned and two doors are now provided for the cabin. Other fresh features are cantilever shock absorbers on one side of the wheel only, and controllable pitch airscrew. Hydraulically-operated wing flaps and undercarriage retracting gear are standard. The weight empty, with equipment, is 5,336 lb., the useful load 3,414 lb. and the gross weight in flying order 8,750 lb. A wing loading of 18.8 lb. per sq. ft. is given with a power loading of 12.5 lb. per h.p. The original GA-43, built in 1932, attained a speed of 196.5 m.p.h. during test flights.

BREGUETS FOR AIR-FRANCE

WE learn from Air-France that a batch of new Breguet 390 all-metal passenger machines have been ordered. Similar in many respects to the Breguet 280 ("Rapid Azur") machines, the new aircraft will be larger, and three Gnome-Rhône engines will be fitted. Accommodation will be provided for ten or twelve passengers. This new equipment will be used chiefly on the Paris-Riviera route, but may operate occasionally on the Paris-London service.

A BELGIAN CONGO ROUTE EXTENDED

FROM January 1, 1934, the Sabena-Congo Co. will operate an air service from Port Francqui to Lusambo.

This 297-mile route is an extension of the Leopoldville-Port Francqui line. Triple-engined Fokkers will be used.

A NEW NORWEGIAN AIR TRAFFIC COMPANY?

AN unconfirmed report states that a new air navigation company under the name of "Det Norske Luftfartsselskab" has been established at Oslo. It is said that on the Board of Directors Norway will be represented by the well-known pilot Riesser-Larson, and Holland by Mr. Plesman, Manager of K.L.M. The latter firm is reported to have shown great interest in the new company.

HULL AND AMSTERDAM AIR SERVICE

THE negotiations for the operation of a service between Hull and Amsterdam have now been concluded, and in the spring of next year the Royal Dutch Air Line will operate, at least once a day, a service between these two cities. The journey should take about 2 hours.

A JAPANESE NIGHT SERVICE

PREPARATIONS are being made for the night operation of the Tokyo-Fukuoka route. Forty beacons are being installed. The first three, Nichiura-Shitagun, Mitsugamine-Hazugun and Nagahiko, Aichi Prefecture, are already in course of erection.

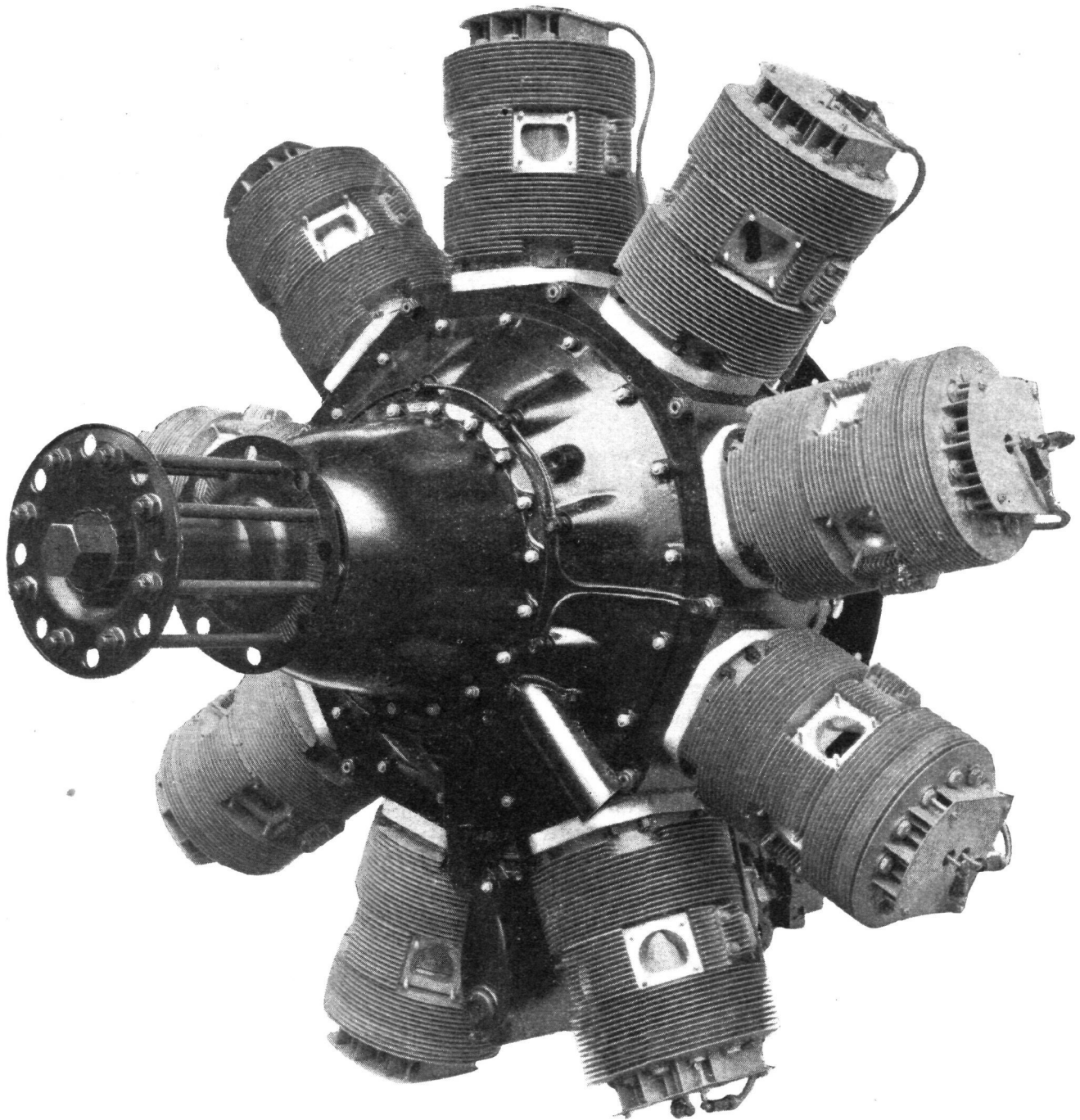
CHRISTMAS MAILS FOR ABROAD BY AIR

THESE tables show the latest dates of despatch from London, and not dates of posting. For latest dates and times of posting, inquire at the local Post Office.

M. against a date shows that the mail is made up in the morning; E., evening.

Destination	Date of Despatch from London
LETTERS	
Argentine Republic	M., 9 Dec.
Brazil—	
Rio, S. Brazil, Pernambuco and Bahia	M., 9 Dec.
All parts except Rio, S. Brazil, Pernambuco and Bahia ..	E., 6 Dec.
British Guiana	E., 8 Dec.
Central America	M., 9 Dec.
Ceylon	M., 9 Dec.
Chile	M., 9 Dec.
Dutch East Indies	M., 6 Dec.
East Africa—	
Principal towns	M., 13 Dec.
Other places	M., 6 Dec.
Egypt, Alexandria and Cairo only	M., 20 Dec.
Hong Kong	M., 6 Dec.
India—	
Karachi	M., 16 Dec.
*Bombay, Delhi and Calcutta	M., 16 Dec.
Other places	M., 9 Dec.
Iraq (by air mail)	M., 16 Dec.
Mexico	E., 8 Dec.
Morocco	M., 22 Dec.
Palestine	M., 16 Dec.
Peru	E., 8 Dec.
South Africa (including N. & S. Rhodesia) Broken-Hill, Bulawayo, Salisbury, Johannesburg and Capetown	M., 13 Dec.
Other places	M., 6 Dec.
Straits Settlements	M., 13 Dec.
Sudan	M., 13 Dec.
Uruguay	M., 9 Dec.
West Indies—	
Trinidad and St. Lucia only	E., 8 Dec.
Other places	E., 6 Dec.
Leeward Islands—	
Antigua only	E., 8 Dec.
PARCELS	
East Africa—	
Nairobi	M., 13 Dec.
Other places	M., 6 Dec.
Egypt	M., 16 Dec.
India	M., 9 Dec.
South Africa (including Rhodesia)	M., 6 Dec.
Sudan	M., 13 Dec.

* Specially superscribed "by air to Karachi and in India."



THE BRISTOL "PERSEUS"

An Interesting New Sleeve Valve Engine

In our issue of October 26, 1933, we announced that the Bristol Aeroplane Co., Ltd., have produced a sleeve valve engine, to be known as the "Perseus," similar in general arrangement to the "Pegasus" in that it is a nine-cylinder radial air-cooled engine, but with the overhead poppet valves replaced by sleeve valves. Concerning this engine, shown in the accompanying photograph, we have received from the Bristol Company the following announcement.

THE Bristol Company, with the active support of the Air Ministry, have been working for the past eight years on the development of a sleeve valve air-cooled engine. Preliminary tests were carried out on a single-cylinder test unit, several designs of cylinder being made and tested and some thousands of hours' running accomplished.

In 1932, as a result of this single-cylinder development, a complete engine, known as the Bristol "Perseus," was constructed and run for some hundreds of hours on the

bench. Finally, in July, 1933, an extremely satisfactory 100 hours type test was completed on this engine, it being the first engine that had been type tested at the Bristol Company's works without any adjustment, servicing or even removal of sparking plugs.

This test was followed up by a 50 hours' weak mixture test and a 50 hours' high-power test, both of which were successfully completed.

The Bristol "Perseus" engine is of approximately 25 litres capacity, and a higher power output with lower fuel and oil consumption have been obtained from it than has ever been experienced on an air-cooled overhead poppet valve engine of similar type.

The original experimental engine is at present undergoing flight trials, and to date the results in the air are as satisfactory as those obtained on the bench. Further sleeve valve radial air-cooled engines are being produced by the Bristol Company, who attach the highest importance to this type for its future engine development programme.



FROM THE CLUBS

LONDON AEROPLANE CLUB

Flying hours for the week totalled 37 hr. 45 min., Messrs. E. W. Benson, C. and W. Goldsmith and C. D. Stanley completing their "A" licence tests. The Club still have the use of a "Puss Moth" and a "Tiger Moth," as well as their permanent machines, three "Gipsy II Moths" and two "Gipsy I Moths." In spite of the fog the dance on Saturday, November 11, was a great success, over two hundred people attending. It has been decided to hold a dance every Saturday until further notice. The annual Xmas Turkey Lunch will be held on Sunday, December 17.

HANWORTH N.F.S.

Owing to the fog which has been lying over Hanworth almost the whole of the week, only 23 hours flying has been carried out during the week. Two members, who have not visited the Club for some time, Com. Hovenden and Mr. Moss, came along on Saturday, November 11, for dual; the former flew solo later on. The floodlight on the training side of the aerodrome has been moved to a new position, giving better facilities for night landings. A small dinner party was given at the club-house on Wednesday, November 15, for Capt. E. D. Ayre, who is leaving Hanworth to join the staff of Airwork as manager of the Manchester Municipal airport. Capt. Ayre has been chief engineer in charge of Hanworth workshops for the past 18 months, and all success is wished him in his new appointment.

BRISTOL AND WESSEX AEROPLANE CLUB

Two new members joined during the week, and Miss M. Hands and Mr. R. J. Lee made first solo flights. Mr. J. E. D. Scott took one of the club machines to Cologne and Bonn, leaving Bristol on Monday, November 13, and returning to England on Thursday, November 16, he was compelled by bad weather to land near Lingfield on the return journey.

LIVERPOOL AND DISTRICT AERO CLUB

Flying returns for the week ending Friday, November 17, amounted to 7 hr. 15 min. dual and 16 hr. 25 min. solo. Dense fog and rain curtailed flying during the week.

CARDIFF FLYING CLUB

The number of hours flown by the Cardiff Aeroplane Club during the past week amounted to 7 hr. 15 min. dual, 3 hr. 20 min. solo and 40 min. tests.

YORKSHIRE AEROPLANE CLUB

Club machines flew 12 hours this last week, rain and fog preventing flying on several days. A new member is Mr. N. Kitchen, of Leeds, and first solos have been done by Messrs. R. Watson and H. Knowles. The Club was visited by Mr. Wynn, of Nottingham, during the week.

NORTHAMPTONSHIRE AERO CLUB

Flying times for the week totalled 16 hours. The Club's youngest member, Miss Anne Tomkins, age two, made her first flight with her father on Sunday, November 12; on landing she was not heard to say that she was flying the Atlantic in the near future. The foundations of the new club-house can now be seen, and an instructional licence has been obtained for the new aerodrome.

HULL AERO CLUB

On Thursday, November 23, Messrs. Lythe and Sizer have offered to entertain members with a film, part of which has been taken at the Club, and shows a number of past events at Hedon; it is hoped that members will turn up to show their appreciation. There will be dances on Saturday, November 25, and Saturday, December 2. In future, evening dress is requested at the Club dances, though it is not essential.

CINQUE PORTS FLYING CLUB

Owing to fog and low clouds only 15 hr. 5 min. were flown during the week, Miss Clare Lemar being the only first soloist. Everything is now fixed for the dance at the Leas Pavilion, which is to take place on Monday, November 27; it is hoped that as many as possible will make a point of being present.

SUSSEX AERO CLUB

In spite of the bad weather over 20 hours' instruction has been given during the first fortnight of the current month. "A" licences were obtained by Messrs. K. G. Jonas, T. G. Stubbley and N. W. Marshall, all of whom

passed their tests in under 10 hours. Mr. E. A. Bailey also completed his tests for an "A" licence. The innovation of presenting pewter tankards, suitably inscribed, to members obtaining "A" licences is proving very popular. New members during the week included Capt. J. A. Ball, Capt. A. M. Wynne, Messrs. N. Brackenbury, E. L. Slight, and G. F. Lawrence. Two more members have purchased their own machines, Messrs. Stubbley and J. K. Lawrence; the former has procured a "Hermes II" Avian and the latter a Cirrus "Moth." A Miles "Hawk" is shortly to be added to the Club machines. A very successful "Rogue and Vagabond" Club dance was held on Saturday, November 11, over a hundred members and friends attending.

MAIDSTONE

The excellent weather experienced at Maidstone during the week ending November 11 encouraged several members to take the air. Prominent among these was Mr. M. Sassoon, who did several cross-country flights. The School are pleased to welcome Mr. Vernan, Sub. Lt. Abbott and Sub. Lt. Johnson as new members.

THE LANCASHIRE AERO CLUB

On Friday, December 1, the Club's one big annual social event, the ball, will be held at the Midland Hotel, Manchester, and it is hoped that every member of the Club will make an effort to be there. It is expected that Sir John and Lady Siddeley will be the host and hostess of the evening. Music is by the celebrated Casani Club Band of B.B.C. fame (Charlie Kunz). Application for tickets should be made at once to the Secretary, or at the Midland Hotel, or to the Chief Instructor.

Continuing the Club's policy of re-equipment with the latest and best aircraft, arrangements have been made with A. V. Roe & Co. to deliver another "Cadet" with all the latest equipment.

The Pemberton and Rodman landing competitions will be held on Boxing Day, beginning at 2 p.m. sharp. Landings will be made as before, but marks will be deducted for distance from a mark at 60 yd. over the tape, to make for greater reality. There will be a message-dropping competition, run concurrently, particularly for ladies and non-flying members, but open to all. On this day there will be no catering available at the Club, but refreshments and other services will be available as usual until 7 p.m.

October saw a very welcome increase in the Club's flying, and it is pleasant to report that three times as much was done this year as the corresponding month last year. Peter Brothers, who is just 16 years of age, put up a very good first solo flight after only 6 hr. 20 min. dual. Mr. R. S. Horrox is worthy of mention also, for doing 3 hr. 5 min. solo and all tests necessary for the Royal Aero Club certificate in the one day. Although the weather is foggy in the industrial areas now, members are reminded that Woodford is very often clear, and that much pleasant and useful flying can be carried out, although the city air may not look very inviting.

The Club will be closed on Christmas Day, open on Boxing Day, and closed on the following Wednesday, Thursday and Friday, opening again on Saturday, December 30. Members are reminded that an opportunity is provided at this time of the year for showing their appreciation of the services of the domestic staff by the Staff Christmas Fund.

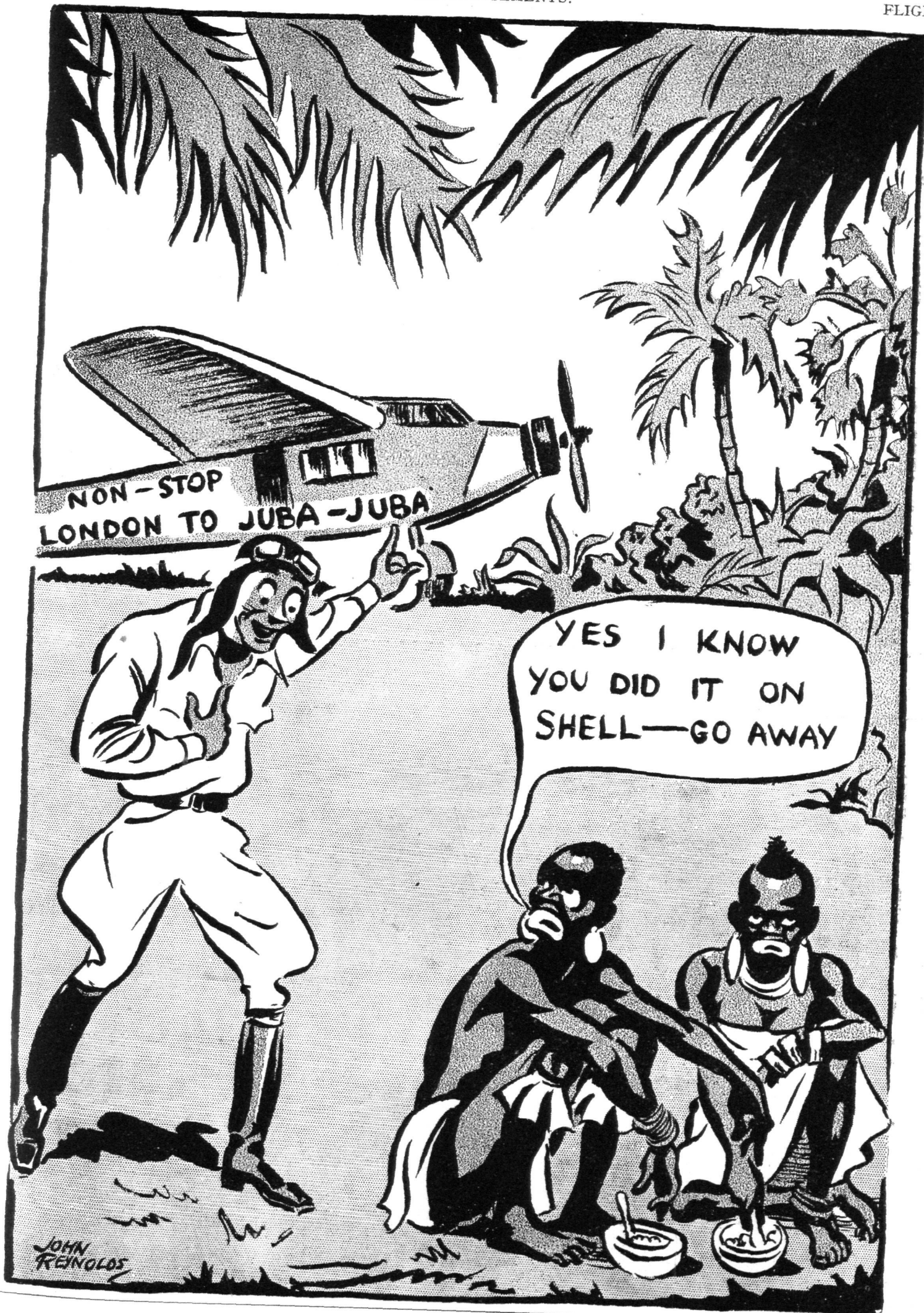
The Club have to thank Mr. Cottrill for his much-appreciated gift of a very fine lawn mower.

The Club have pleasure in welcoming the following gentlemen to the Lancashire Aero Club:—Dr. N. J. Crawford (flying), P. M. Brothers (flying), D. K. Fairweather (country), E. F. C. Smith (ordinary), L. L. E. Honeyball (ordinary).

LONDON GLIDING CLUB

An easterly wind limited activities at Dunstable on Sunday, November 19, to carpentry and primary instruction. The *Dickson* and *Prüfling* were used repeatedly without incident, and the embellished *Willow Wren* made three long test-hops.

On the previous day the *Scud II* was taken to the Eastbourne area by two club-pilots, one of whom had never even sat in the machine previously. Conditions were cold and damp, with haze, a very low cloud-sheet, and a S.E. sea breeze of about 15 m.p.h. Each pilot had a



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Photo by courtesy of "Flight"

A. V. ROE & CO. LTD., Newton Heath, **MANCHESTER,** Cables: *Triplane, Manchester.* Phone: *Collyhurst 2731*

25-minute flight on a beat extending 2½ miles northward, landing immediately behind the launching point. The machine behaved excellently. The owner-pilot then soared over the sea off Beachy Head; he later travelled northward until he ran into the inland dead-calm, which brought him down, and flying finished for the day. An almost complete absence of spectators was distinctly refreshing. The three launches were carried out by a fortuitous gathering together of seven people, including the pilot.

DELHI FLYING CLUB

Flying times for the month of September amounted to 32 hr. 40 min. dual and 58 hr. 05 min. solo, there being three machines in service, two D.H. "Moths" and one "Bluebird." Mr. Bhagat Lal has been appointed to succeed Capt. A. I. Riley, A.F.C., as Chief Pilot of the Club. The Annual Rally will be held next February, and as Capt. Riley leaves for home in December, this will be Mr. Bhagat Lal's first public function. Mr. Swabey has been elected Hon. Secretary to the Club in place of Mr. Rugginz, who is now Vice-President of the Club.

BENGAL FLYING CLUB

The Bengal Club's flying times for September totalled 29 hr. 40 min. dual and 125 hr. solo, with four D.H.60 "Moths" in commission. Three pilots, Messrs. W. Dougall, C. G. Pountey and J. W. Ross did a cross-country flight to Asansol and return, having Messrs. B. N. Bhattacharjee, Baron and Taylor in their back seats. Four Indian Trans-Continental Airway machines landed at Dum Dum Aerodrome and four started for Karachi, five inward- and four outward-bound K.L.M. machines passed through, and four inward- and four outward-bound French machines passed through.

BOMBAY FLYING CLUB

Flying returns for September show a total of 15 hr. 20 min. dual and 45 hr. 05 min. solo, five machines being in use, two D.H.60 "Moths" two metal D.H.60 "Moths" and one D.H.83 "Fox Moth." The Club membership stands at 304. A few hours only were flown at Poona and the Club machines returned to Bombay on September 21. On September 13, Mr. H. E. Daruwalla, a Club member selected for training as Station Superintendent under Imperial Airways, left for England by air to start his course. A Club machine was hired during the month to collect a film from the K.L.M. machine due at Karachi on September 24; and in spite of the fact that the K.L.M. machine was a day late, the films arrived back in time to be shown as scheduled. The Bhiwandiwalla Gold Cup, for the best performance during the year by a member of the Club, was won by Lt. D. Misri Chand, who has just returned from a world tour.

MADRAS FLYING CLUB

The Madras Flying Club flew 87 hr. 50 min. during September, one "A" licence being obtained by Mr. P. S. Warrior. The outstanding event of the month was a great party (lunch, tea, dinner, bed and breakfast) given by Rajah Sir Annamalai Chettiar, Rajah of Chettinad, on September 17, to which the committee and staff of the Club were invited. The occasion was the inauguration of the Chettinad Aerodrome as a port of call for the air mail to Ceylon when it is started. Everyone admired the beautifully-designed and furnished club-house of the Chettinad Flying Club.

KUALA LUMPUR FLYING CLUB

September proved to be another very successful month, 173 hr. 25 min. having been flown, with three "Gipsy Moths" in commission. There were six new soloists and two new "A" licences, Messrs. R. J. Watson and J. Hertzlett. On Saturday, September 9, the quarterly competition for the Carl Nauer Challenge Cup was held and took the form on this occasion of a Handicap Landing Contest, the winner being Mr. G. Hinds. On Saturday, September 23, a gala evening was held for the benefit of the local church funds, and took the form of an aerobatic, display, joyriding, and a dance in the club-house. The following day two Club machines took part in military manoeuvres under the supervision of Flt. Lt. G. M. Knocker. Cross-country flights were made to Singapore and Penang, and two members started a course of "Blind Flying," which was inaugurated during the month. The Club have decided to purchase the "Cirrus Moth" belonging to Mr. Birch, of Johore Bahru, a member of the Club, who is shortly going home on leave; the machine will be rebuilt and fitted with one of the spare "Gipsy I" engines. The Club will be glad to hear of anyone who is interested in purchasing the "Cirrus III" engine.

CIVIL FLYING CLUBS IN GREAT BRITAIN

The following list, compiled by the Air Ministry, of Civil Flying Clubs in Great Britain, may be of interest. It includes, where available, the secretaries, and also the headquarters addresses, but it should be noted that some of these have, probably, been altered since the list was compiled.

(A) Government-assisted Light Aeroplane Clubs

- 1. London Aeroplane Club:** Stag Lane, Edgware. Secretary, H. E. Perrin, 119, Piccadilly, W.1.
- 2. Lancashire Aero Club:** Avro Aerodrome, Woodford. Secretary, T. E. Burgess, Avro Aerodrome, Woodford, nr. Stockport.
- 3. Midland Aero Club:** Castle Bromwich, Secretary, Major G. Dennison, Villa Road, Handsworth, Birmingham.
- 4. Newcastle-upon-Tyne Aero Club:** Cramlington, Northumberland. Secretary, F. L. Turnbull, Cramlington Aerodrome, Northumberland.
- 5. Hampshire Aeroplane Club:** Atlantic Park, Managing Director, W. L. Gordon, The Southampton Aerodrome, Eastleigh, Hants.
- 6. Norfolk and Norwich Aero Club:** Sprowston, Norwich. Secretary, John Taunton, Municipal Aerodrome, Norwich, Norfolk.
- 7. Bristol and Wessex Aeroplane Club:** Whitechurch, Bristol, Manager, Capt. L. P. Winters, Bristol Airport, Bristol.
- 8. Scottish Flying Club:** Moorpark. Secretary, O. Cochran, Renfrew Aerodrome, Renfrew.
- 9. Herts and Essex Aeroplane Club:** Broxbourne. Secretary, F. E. Darlow, 27, Cavendish Avenue, Woodford Green, Essex.
- 10. Cinque Ports Flying Club:** Lympne, Kent. Manager, W. E. Davis, Lympne Airport, Lympne, Kent.
- 11. Liverpool and District Aero Club:** Hooton Park, Cheshire. Secretary, C. W. Binks, Hooton Park, Cheshire.
- 12. The Southern Aero Club:** Shoreham, Sussex. Secretary, Capt. C. Titterton, Shoreham Aerodrome, Sussex.
- 13. Northamptonshire Aero Club:** Sywell, Northants. Manager, Sywell Aerodrome, Northampton.
- 14. Leicestershire Aero Club:** Desford, Leicestershire. Hon. Secretaries, Desford Aerodrome, Leicester.
- 15. Eastern Counties Aeroplane Club:** Ipswich. Hon. Secretary, J. Lloyd, Ipswich Airport, Ipswich, Suffolk.
- 16. Brooklands Flying Club:** Brooklands. Managing Director, H. Duncan Davis, A.F.C., Brooklands Aerodrome, Byfleet, Surrey.
- 17. Cardiff Aeroplane Club:** East Moors. Secretary, Arthur S. Davis, East Moors, Cardiff.
- 18. Scarborough Aero Club:** Ganton Aerodrome, East Heslerton, Malton, Yorks. Secretary, W. R. Baynes, Greensmith's Chambers, St. Nicholas Street, Scarborough.

(B) Unassisted Light Aeroplane Clubs

- (I) Clubs under **National Flying Services, Ltd.**, The Grange, London Air Park, Feltham, Middlesex.
- (1) Yorkshire Aero Club:** Yeading.
 - (2) Nottingham Aero Club:** Tollerton. Secretary, 30, Park Row, Nottingham.
 - (3) Berks, Bucks and Oxon Aero Club:** Woodley. Secretary, 12, Highmoor Road, Caversham, Reading.
 - (4) Hanworth Flying Club:** Feltham (Hanworth Park). Secretary, Hanworth, Middlesex.
 - (5) Hull Aero Club:** Hedon. Secretary, "Evening News," Hull.
 - (6) Blackpool and Fylde Aero Club:** Blackpool Municipal Aerodrome, Stanley Park. Secretary, Stanley Park, Blackpool.
 - (7) North Staffordshire Aero Club:** Stoke-on-Trent. Secretary, B. C. Harrison, The Brampton, Staffordshire.
- (II) **Other Unassisted Light Aeroplane Clubs**
- Surrey Aero Club:** Gatwick Aerodrome, Lowfield Heath, Crawley, Sussex.
- Plymouth and District Aero Club:** Mr. Roy Mumford, The Oaks, Hartley, Plymouth.
- Heston Aero Club:** Heston. The Secretary, Heston Air Park, Middlesex.
- Reading Aero Club:** Woodley, Reading. Phillips and Powis Aircraft (Reading), Ltd., Reading Aerodrome, Woodley, Reading.
- Maidstone Aero Club:** Maidstone Airport, West Malling, Kent. Proprietors, Land, Air and Water Services, Ltd., Head Office, 126, Long Acre, W.C.2.
- Press Aero Club:** Brooklands Aerodrome, Weybridge, Surrey.
- London General Omnibus Company:** Honorary Secretary, L. A. Utteridge, 66, Moray Road, N.4.
- Southend Flying Club:** Rochford, Essex. Secretary, 64, Hamlet Road, Southend-on-Sea.
- Coventry and Warwickshire Aero Club:** 25, Wainbody Avenue, Coventry.
- York County Aviation Club:** Shadwell, Leeds.
- Cambridge Aviation (proposed):** E. S. Par, 32, Hardwick Street, Cambridge.
- Old Etonian Flying Club:** Air Vice-Marshal A. E. Borton, D. Napier & Son, Ltd., Acton, W.3.
- Calder Valley Aero Club:** Lumbrook, Northowram, nr. Halifax.
- Wiltshire School of Flying and County Club:** High Post Aerodrome, Middle Woodford, Salisbury, Wilts.
- Lincolnshire Aero Club, Ltd.:** Secretary, D. C. Lazenby, A.C.A., 39, Wellowgate, Grimsby.
- Kent Flying Club:** Bokesbourne Aerodrome, near Canterbury.
- Cheltenham and Gloucester Aeroplane Club, Ltd.:** 17, London Road, Gloucester.
- Portsmouth Aero Club:** Portsmouth, Southsea and Isle of Wight Aviation, Ltd., Portsmouth City Airport, Portsmouth.
- Manchester Aero Club:** Hon. Secretary, F. Hemingway, 19, Entwistle Avenue, Davyhulme, near Manchester.
- Southport and District Aero Club:** Southport Aerodrome, Southport.
- Gravesend Aero Club:** Gravesend Aerodrome, Kent.
- L.C.S. Employees' Flying Club:** Secretary, W. J. Burr, 55, King Edward's Road, Barking, Essex.
- South Downs Aero Club:** Ford Aerodrome, Yapton, Sussex.
- Cotswold Aero Club:** The Aerodrome, Cheltenham Road, Gloucester.
- East Anglian Aero Club (proposed):** Secretary, P. H. Wellum, Loughton Aerodrome, Abridge, Essex.
- Shropshire Aero Club (proposed):** Secretary, C. L. Parker, 53, Hill Crescent, Longden Road, Shrewsbury.

AIRPORT NEWS

CROYDON

ANOTHER week of indifferent weather at the Airport of London. What it has shown is that today it makes very little difference to the regularity of air travel. The other day I met a passenger who had been unable to complete the journey from Copenhagen to London owing to fog at Croydon. The machine had landed at Lympne, and he had been particularly impressed by the smooth way everything was organised there. Very shortly after landing, the passengers had been taken by car to Folkestone station, provided with first-class tickets to London, and put on the train. They were an hour or two late, of course, but the total journey time was enormously reduced in comparison with surface travel. Properly organised alternative airports make air travel the best means of getting about, even when terminal airports are closed by fog.

On Sunday the new scheme of zone traffic control, which is being tried out here, came into force. Only as many inward aeroplanes were allowed to enter the 10-15-mile zone surrounding the airport as, in the opinion of the Control Tower officer, could do so with safety. Machines were "laid off" until their turn came, and, so far as I can gather, the system worked well, considering it was the first day of the zone control.

Imperial Airways, Ltd., are constantly on the look-out for improvements. They now have a new experimental caterpillar tractor similar to an Army tankette for towing heavy aeroplanes to and from the hangar. It is loaded with heavy weights to ensure grip on the smooth "tarmac apron" (which, in fact, is made of concrete slabs).

By the way, the Imperial Airways passenger gangway I mentioned last week is not an attempt to emulate the telescopic gangways used in America. Those stretch from the building to the machine for protection against weather, whereas the British one is only meant to shelter passengers from propeller wind, possible specks of oil, and from waiting in inclement weather whilst some passenger pauses in the doorway of the machine, as always seems to happen. A telescopic gangway from the building is only possible if but one machine at a time is leaving.

Last Sunday the famous Arsenal travelled to Paris by Imperial Airways, Ltd., to play the Racing Club de France. They chartered a special machine, and I imagine found it worth while, for they won their match and returned to Croydon by air on Monday. The same day six French Members of Parliament arrived by Air-France "Clipper" to witness our opening of Parliament. Maurice Chevalier (who looks not unlike a country M.P.) also travelled by Air-France during the week.

The second D.H. "Dragon" recently delivered to Imperial Airways, Ltd., for pipe-line patrol work in Iraq left Croydon for Palestine on Saturday last, piloted by Mr. Alcock, brother of the late Sir John Alcock.

Maj. Willy Coppens, Belgian Air Attaché, who really uses his "Moth" as other men use their cars, flew in from Paris in that machine on a day of not too good flying weather during the week.

Ridiculous stories have appeared in the English Press about Germany training war pilots simply because the big German machines carry a crew of four in some cases. This merely means a first and second pilot, a wireless operator—essential when telephony is not used—and a flying mechanic. It might occur to anyone that it is essen-

tial to train civil pilots and other members of an aeroplane's crew by carrying them to and fro on air liners in winter time, when there is not such a rush for passenger accommodation.

The air companies are badly handicapped in the sort of weather we have had lately by lack of "outward" Customs clearance facilities from such alternative airports as Gatwick and Gravesend. I heard of a case during last week where a Dutch machine was expected to land at Gravesend owing to weather. It was decided to send the passengers for the outward journey by road to Gravesend to embark. The company, however, could not get Customs permission to clear Customs outwards from Gravesend, but would have had to fly to Lympne for clearance. It is beside the point that in this case the necessity did not arise, as the machine got through to Croydon. If passengers had been embarked at Gravesend, the pilot would have had to fly across everybody's path to Lympne in bad weather and land there at a time when other machines were perhaps trying to get in in conditions of bad visibility. It might have happened that Lympne was too bad to approach, and then a perfectly feasible flight from Gravesend to Holland would have had to be cancelled. This sort of thing is not good enough, and the authorities who have been requested to grant these simple facilities are endangering traffic by unnecessarily concentrating it on Lympne when bad weather conditions make congestion extremely perilous on the air routes.

A. VIATOR.

FROM HESTON

AT 3.15 p.m. on Thursday, November 16, two large airliners landed at Heston. A wireless report stated that visibility at Croydon was 40 yards, and both the four-engined *Horatius* from Paris and the three-engined Junkers machine from Berlin altered their course to Heston, where school flying had been going on all day under reasonably good conditions. By the time they arrived, an Imperial Airways' motor coach was waiting, and a "relief" coach arrived soon afterwards. Later, *Horatius* managed to get back to Croydon. The German machine, however, spent the night at Heston and left next morning at 10.30 with eight passengers for Berlin. Its twin rudders are decorated, one with the German national colours, and one with the ubiquitous swastika.

Mrs. Calthrop and Miss Heaton are taking an instrument-flying course with Mr. Brian Davy.

Count Weininger, who has just obtained his "A" licence at Heston, came over from Austria to learn to fly.

Since the new Airwork-built C.30 P. "Autogiro" completed its trials, a repair job on an old-type C.30 has been put in hand. The C.24 cabin type has also been in the shops for extensive repairs, and is now rebuilt and under the spray-painting apparatus.

Last week Wrightson & Pearse disguised a "Tiger Moth" and flew to Weymouth to co-operate with Gaumont British Distributors, Ltd., in "Jack Ahoy!" Their "Cirrus II Moth" (at £2 a day, fuel and insurance extra) has been in constant demand for day trips and short holidays.

Birkett Air Service flew pictures from Portsmouth in connection with the *Evening Standard* page of Armistice Day celebrations.

AIR TRAFFIC CONTROL IN BAD WEATHER

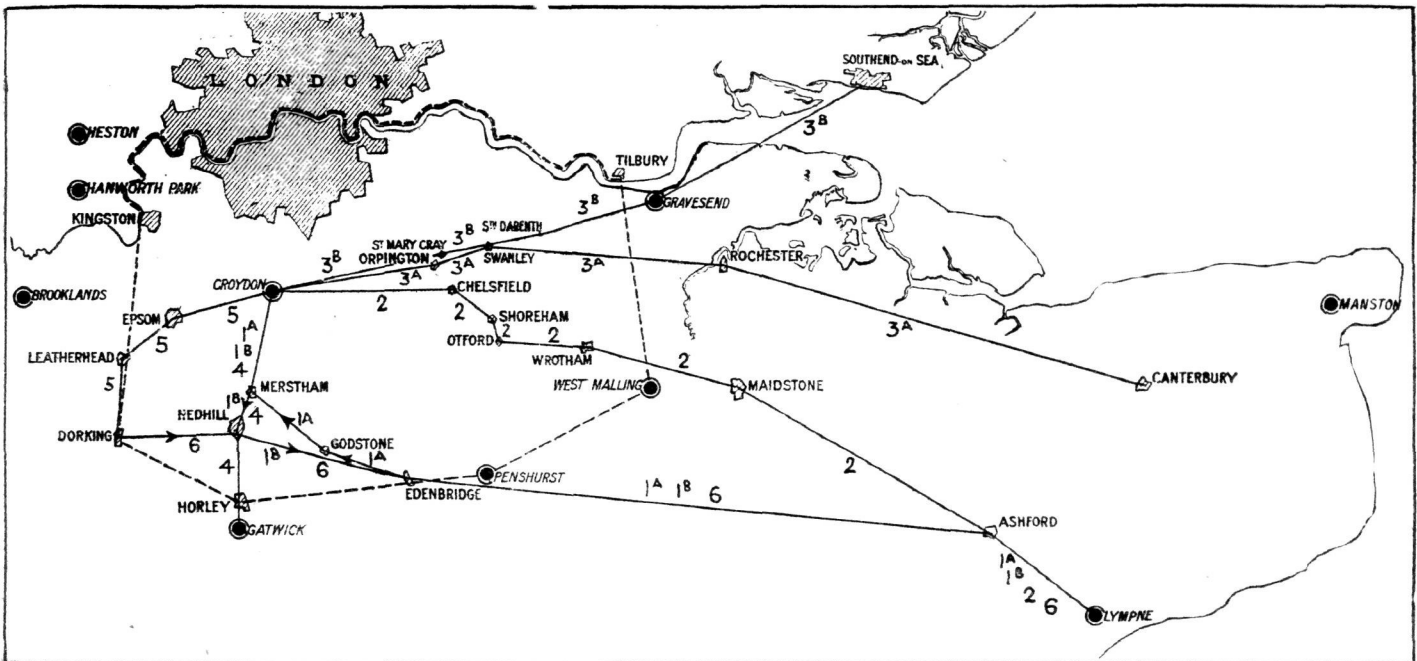
WE have already made brief reference to the Croydon Controlled Zone, on which, for some considerable time now, the authorities have been working, and this was also referred to in more detail by Major Mealing, of the Air Ministry, in his paper before the Royal Aeronautical Society on October 12.

On November 19 this scheme came into being and is designed especially to reduce the risks of collision on the London-Continent airway during conditions of bad visibility. Air Ministry Notices to Airmen, Series A, Nos. 81

and 82, of the year 1933, contain full instructions on the subject, and should be consulted in this connection. The new arrangements entail the cancellation of those parts of the Air Pilot (Vol. I) which refer to "Officially defined air routes," and to "Flight on Croydon-Lympne air route under conditions of bad visibility," also to the officially defined air route zone on Sheet 12 of the 1/4-in. Civil Air Edition Map of England.

Accompanying this article will be found a map showing the new officially recognised routes and the controlled





LONDON-CONTINENTAL AIRWAYS: This map, reproduced from the Notice to Airmen on the subject, shows the routes now officially recognised for Continental air traffic and also defines the Croydon controlled zone. Routes 1a, 1b and 6 are only to be used in the appropriate direction.

zone. Pilots wishing to communicate with the Control Officer at Croydon about these routes otherwise than by radio should telephone Croydon 2720. As we have already said, these new arrangements primarily refer to conditions of bad visibility. These conditions are considered to prevail when the height of the cloud base is less than 1,000 ft. above sea level or the horizontal visibility is less than 1,000 yards.

When these conditions are encountered on any point on the London-Continent airway, aircraft fitted with radio must either fly on a rhumb line course above or in the clouds, or if they wish to fly below they should make immediate report of their position (including height above sea level) by radio to the Croydon Control. The Control will then intimate to the aircraft whether, having regard to the position of other aircraft, the intended route or track is considered suitable and in certain cases may advise the aircraft to stay outside the zone and indicate the height above sea level to be maintained. If the aircraft in such a case decides to land outside the zone, the Control should be informed accordingly.

These warnings will not be given by the Control without due consideration, and it is pointed out that any pilot who disregards them incurs a grave responsibility, as the safety not only of his own aircraft, but that of others, may be at stake.

Full details for making these reports by radio are contained in the Notice to Airmen No. 82.

Aircraft which are not fitted with radio or whose radio is out of action must not fly in the clouds, but must either fly on a rhumb line course above them or, which is considered preferable, fly below them along one of the official routes, landing before entering the Controlled Zone and telephoning Croydon for instructions, unless these have been obtained before beginning the flight.

The officially recognised routes are given in the following table, and the appropriate Notice to Airmen stresses the fact that pilots must in the vicinity of these routes comply with the rules as laid down in the Air Navigation Order. Moreover, attention is drawn to the fact that routes 1a, 1b, and 6 are only to be used by aircraft flying in the appropriate direction:—

(a) *To be used by incoming aircraft only.*

ROUTE 1A: Lympne—along railway line to Ashford and Edenbridge—Godstone—Merstham—along the railway line to Croydon.

Note.—A deviation from the main railway line should be made to the northwards at a point immediately west of Tonbridge so as to avoid the Tonbridge explosive area.

(b) *To be used by outgoing aircraft only.*

ROUTE 1B: Croydon—Merstham—Redhill—along railway line to Edenbridge and Ashford—Lympne.

(c) *Available for both incoming and outgoing aircraft.*

ROUTE 2: Croydon—Chelsfield—along Shoreham Valley

to Otford—along railway line to Wrotham Heath and West Malling—along road to Maidstone—along railway line to Ashford—Lympne.

Caution: H/T masts 60-80 ft. high span the Shoreham Valley $1\frac{1}{4}$ miles N.N.E. of Shoreham.

ROUTE 3A: Croydon—Orpington—Swanley Junction—along railway line to Rochester—Chatham—along main road to Canterbury.

Note.—Care must be taken to avoid the Chatham prohibited area.

ROUTE 3B: Croydon—St. Mary Cray—along railway line to South Darenth—along railway line to Gravesend—Southend-on-Sea.

ROUTE 4: Along railway line Gatwick—Redhill—Merstham—Croydon.

ROUTE 5: Along railway line Dorking—Leatherhead—Epsom—Croydon.

(d) *To be used by east-going aircraft only.*

ROUTE 6: Along railway line Dorking—Redhill—Tonbridge—Ashford—Lympne.

The Croydon Controlled Zone comprises an area bounded by Tilbury Ferry, West Malling aerodrome, Penshurst aerodrome, Horley, Dorking, Kingston-on-Thames, and thence by the north bank of the River Thames to Tilbury Ferry. When conditions of bad visibility prevail in any area within the controlled zone a "Bad visibility notice" will be broadcast from Croydon on W/T (900 metres) and R/T (862 metres), and by R/T (833 metres) from Heston Airport. The R/T notice will consist of the words "Bad visibility—Croydon Controlled Zone scheme in force." The W/T signal, "QBI." The aircraft operating companies at Croydon and the controlling authorities at Lympne, Manston, Gravesend, West Malling, Penshurst and Gatwick will be notified direct. Cessation of the bad visibility conditions will be notified in a similar manner. For the edification of aircraft not fitted with radio a "bad visibility notice" will be displayed by means of ground signals on the Manston, Lympne and Littlestone aerodromes. The character of these is shown in our illustration.

Aircraft intending to depart from within the controlled zone when a "bad visibility notice" is in force, should inform the Croydon Control as to the route (including height above sea level) which it is proposed to follow, and they will then receive advice as to its suitability in the prevailing circumstances.

It will be seen from the foregoing that there is no attempt to remove from the pilot the final responsibility for his actions. Throughout the Notice the wording shows that the Control of the zone will be in the nature of advice from Croydon Control, but it is pointed out that once the pilot has agreed as to his intended route he should not, except in the gravest emergency, deviate from this without previously notifying the Control.

AIRISMS FROM THE FOUR WINDS

French African flight

TWENTY-FIVE of the twenty-eight French machines, which are doing a flight to the French African possessions, have arrived at Gao. One machine came down in the desert and two others remained behind to escort it on after repairs had been done. On Thursday, November 16, the whole flight reached Mopti in Upper Senegal. By November 20 they had reached St. Louis, Senegal, having flown via Kayes and Dakar.

The R.A.F. South African flight (1934)

THE itinerary for the Service South African flight of next year has been fixed provisionally. The machines will leave Heliopolis on February 26, and will fly to Pretoria by way of Kisumu, Moshi, and Buluwayo. Pretoria should be reached on March 7. The homeward journey will begin on March 13, and the machines should be back in Heliopolis by May 4. During the journey home halts will be made at outlying places in Rhodesia and Nyasaland.

The Lindberghs

COL. AND MRS. LINDBERGH arrived in Lisbon on November 15.

Air defence in Warsaw

On Wednesday, November 15, air exercises were held in Warsaw to train the army and civilian population in measures to be taken against air attack.

Automatic parachutes

AN experiment has recently been tried in America with parachutes of an automatic nature. A machine cruised about 1,500 ft. above the ground, and from that height two passengers and their metal seats were projected out of the machine and into thin air by the operation of a lever in the pilot's cockpit. Parachutes opened above the passengers, who were thus safely conducted to mother earth. A second pull on the lever discharged a couple more passengers in a downward direction.

Shell business flight

DETAILS were given in FLIGHT for November 2 of a long business flight being undertaken by Shell Mex, the machine, a Monospar, being flown by Jerry Shaw. According to the Asiatic Petroleum Co. the machine was damaged at Shaibah through an oleo leg springing out after running over rough ground, which caused a collapse of the undercarriage. The machine is being totally dismantled and shipped to Karachi.

Dornier to move?

It has been reported that Dornier Metallbauten have decided to transfer their works from the shores of Lake Constance to those of the Baltic. Wismar is the site

mentioned, and is situated in Lübeck Bay, a position not too far removed from either the very important city of Hamburg or from the Kiel Canal.

A Dornier freight carrier

THE Dornier works at Altenrhein, Switzerland, have just completed the Do.V, a three-engined cantilever high-wing monoplane. The machine is designed to carry freight and has a fuselage with plenty of space. The three direct-drive Bristol "Jupiter" engines are mounted as tractors, one on each side on a level with, but ahead of the leading edge of the wing, and the third engine above the wing, farther aft. The wing span is of 91 ft. 10 in., and the wing area is 1,195 sq. ft. The tare weight is 11,000 lb. and the gross weight 18,700 lb. The cruising speed is given as 137 m.p.h. and the range as 930 miles.

The first Turkish-built aircraft

AN aeroplane built from Turkish raw materials has been built by the "Kaissari" manufacturers. Originally belonging to the Junkers group, these constructors are now operated by American (probably Curtiss) interests.

"Emeraude" makes more history

LAST week we recorded briefly the flights from Paris to Marseilles and back and to Dakar made by the Dewoitine D.332. The machine has since made the return flight to Paris, and as extremely good time was made, it may be of interest to give a few particulars. On the outward flight to Dakar, start was made from Le Bourget, Paris, on November 10. The time-table turned out as follows:—Departure Le Bourget, 8.07, arrival Marseilles 10.30; departure Marseilles 11.40, arrival Casablanca 18.38; departure Casablanca 22.12, arrival Agadir 23.40; departure Agadir 1.10, arrival St. Louis 7.20; departure St. Louis ?, arrival Dakar 9.50. The outward journey thus took 25 hr. 43 min. As the distance from Paris to Dakar is 3,540 miles, the "commercial speed," i.e., speed based on lapsed time, was 137.5 m.p.h. The actual flying time was 19 hr. 6 min., giving an average flying speed of 185.3 m.p.h. The return journey was started on November 12, and the following times were logged:—Start Dakar 4.35, arrival Villa-Cisneros 8.30; departure Villa-Cisneros 9.07, arrival Casablanca 15.23; departure Casablanca 4.35, arrival Marseilles, 11.45; departure Marseilles 12.47, arrival Le Bourget 16.00. Owing to the relatively long stay at Casablanca, the return journey took a lapsed time of 35 hr. 25 min., giving a commercial speed of about 100 m.p.h. The actual flying time was 20 hr. 41 min., giving an average flying speed of 171 m.p.h. Among the passengers was, on the return flight from Marseilles to Le Bourget, Mr. Plesman, the Managing Director of the K.L.M.

British Polar Year Expedition

THE six members of the British Polar Year Expedition have now returned to England, and the leader, Mr. J. M. Stagg, has issued a report on the work done. Their station was at Fort Rae near the northern shore of the Great Slave Lake in northern Canada. The aim of the expedition was to carry out a programme of observation of meteorology, terrestrial magnetism, aurora, and atmospheric electricity. The party was at Rae for a year, living in log huts covered with mud. The observations were made continuously from August 1, 1932, to August 31, 1933. Not a little difficulty was met with from various delicate instruments getting out of order in the changing temperatures. Hydrogen was manufactured on the spot for inflating the balloons, which were constantly sent up carrying recording instruments. In all, about 450 balloons were sent up, many of which reached heights of over 20,000 ft. Two records of temperature and pressure well



HELICOPTER RESEARCH: M. Florine, the designer of the helicopter illustrated last week, is seen seated in the machine, while standing in front of it is M. Collin, the pilot, who kept the machine in the air for just under 10 min.



BY APPOINTMENT

FIRST FLIGHT OVER WORLD'S
HIGHEST
MOUNTAIN

LONGEST
NON-STOP FLIGHT

FASTEST
SPEED EVER

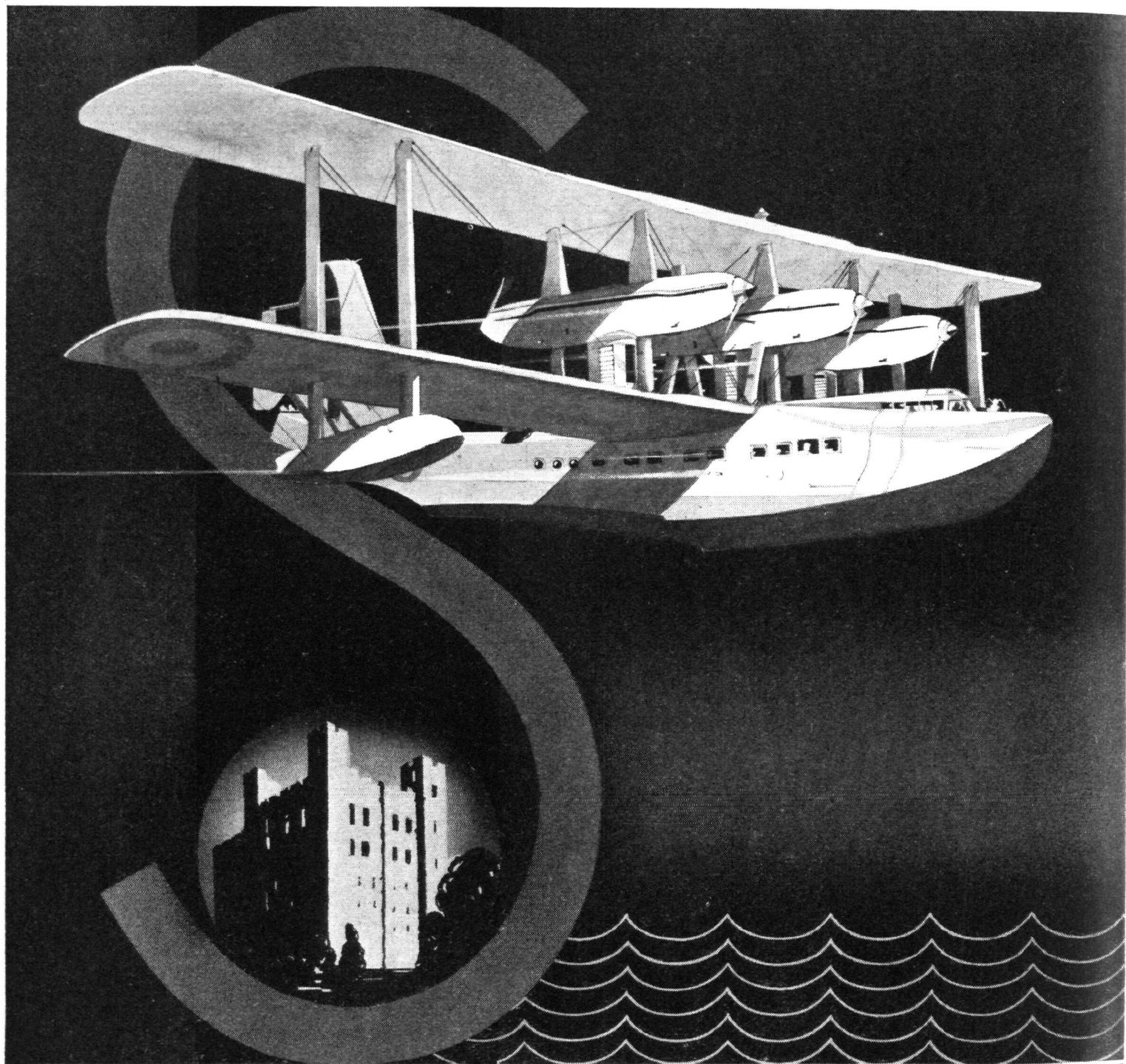
ALL ON

WAKEFIELD

Castrol

MOTOR OIL

THE PRODUCT OF AN
ALL-BRITISH FIRM



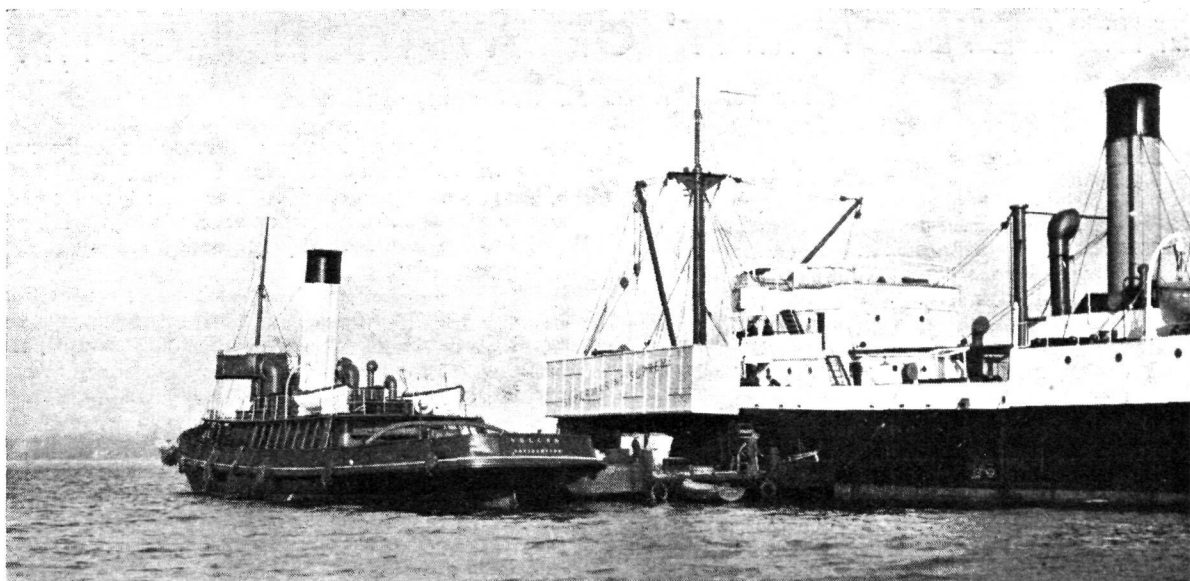
AS SOUND IN DESIGN AS ROCHESTER
CASTLE!

The 32 TON SHORT R6/28 (SIX ROLLS-ROYCE BUZZARDS).

SHORT BROS.

R O C H E S T E R

Kindly mention "Flight" when corresponding with advertisers.



"SOUTHAMPTONS" FOR TURKEY: Loading the first two Supermarine "Southampton" flying-boats on to the S.S. Polo. The Westcott & Laurance Line were able to deal with the largest case, which measured 49 ft. and weighed $9\frac{1}{4}$ tons with its own gear. The cases are of metal and are so designed that they can be taken to pieces and returned in a small rectangular shape.

into the stratosphere were obtained, and it is hoped that, through the help of the Royal Canadian Mounted Police, and, through them, of the Indians, more of the upper-air instruments which were sent up will yet be recovered. In all four subjects satisfactory records were obtained, despite the various difficulties with the instruments.

During the year prospectors for gold and miners in some numbers passed through Rae by aeroplane, and the report says that then the expedition enjoyed the "questionable benefits" of postal contact with the outside world. None of the party suffered much from the extreme cold, though Mr. Stagg concludes by remarking that "a combination of 70-75 deg. F. of frost, with a strong wind at times . . . tended to remind us that there were really worse places than Britain for outside observational work."

Two French crashes

Two commercial machines came to grief in France on Thursday, November 16. One machine was flying to London, and when near Beauvais one of its engines packed up in a fog. The pilot and only other occupant of the machine jumped out and escaped by parachute. The machine crashed on to the roof of a factory and caught fire. Although over 2,000 people were working in the factory at the time, no one was injured. The second machine, which was flying from Le Bourget to Marseilles, made a forced landing between Dijon and Lyons and was damaged.

Developing the Kadenacy

SOME time ago we referred to some experiments made in France with a Junkers single-cylinder engine unit converted to work on the Kadenacy principle. This, it may be recalled, is based on the Kadenacy theory that when the exhaust valve or port of an internal-combustion engine is opened, the gases rush out with such force as to leave momentarily a virtual vacuum in the cylinder, which is used to draw in the fresh charge. M. Odier has now been commissioned jointly by the *Section Technique* and the inventor, states our excellent French contemporary *Les Ailes*, to undertake the development of the Kadenacy cycle as applied to aero engines. For a start a light-plane engine will be converted, but as it will not be strong enough to stand any great increase in power, attention will be concentrated on getting the engine to work without the usual valve gear, and on getting out of it the same power as a two-stroke as that developed by it as a four-stroke. M. Odier contemplates the design of a six-cylinder radial engine, which he expects to develop something in the region of 135 h.p. for a weight of 175 lb. or so. That step having been achieved, M. Odier envisages the time when the ignition system is thrown away to join the valve gear on the scrap heap. In other words, the compression-ignition engine working on the Kadenacy cycle. That day may be close at hand or far away. So far no one knows.

Mr. McDonough in England

MR. W. J. McDONOUGH is at present on a visit to this country from Canada. He is staying at the Mayfair Hotel, London, and will be leaving again in about two weeks' time.

New Belgian training machine

THE S.V.5 is a new training machine designed for the Belgian Army and fitted with a 340-h.p. air-cooled Siddeley "Serval" engine. Its production affords outstanding proof of the vitality and enterprise of its makers for barely five months elapsed from the time when the drawing office commenced the design to the moment when the aircraft took the air. The machine is of metal and wood construction, the principal joints of the fuselage being rustless steel, while other metal parts are protected by an electrolytic deposit. The performance figures are secret for the present but the approximate data are as follows:—Maximum speed 156-169 m.p.h. (250 to 270 km./hour). Landing speed 50 m.p.h. (80 km./hour). Ceiling 21,000 ft. (7,500 metres).

Service crash in Palestine

A VICKERS "Victoria" of No. 216 (Bomber Transport) Squadron, Heliopolis, crashed on the hills near Ramallah in Palestine on Monday, November 20, while flying from Ramleh to Amman. There were no fatal casualties, though five men were badly injured.

Burma Governor airminded

THE Governor of Burma, on Monday, November 20, proceeded on a tour of Akyab by aeroplane. He is travelling as a guest of Imperial Airways, and will return as a guest of the Dutch Air Line. This is reported to be the first time the Governor has travelled by air while on official duty.

American stratosphere ascent

A REPORT from America states that Lt. Com. T. G. W. Settle, on Monday, November 20, made a stratosphere ascent of over 58,000 ft. He was accompanied by Maj. C. L. Fordeny, of the Marine Corps. The balloon used was specially constructed, with a spherical gondola, and was the same as that in which Lt. Com. Settle made a previous attempt on the height record at Chicago. This flight, if confirmed, beats Prof. Piccard's ascent to 53,151 ft., but not the Soviet ascent which, according to reports, reached over 60,000 ft. The balloonists are reported to have worn no special clothes, depending on the rays of the sun to keep them warm. A contingent of flies was taken up in the balloon so that the effect on them of cosmic rays could be studied.

Flying fish

THE Fish Culture Department in Quebec recently transported by air 30,000 trout fry from Lake Sacocami to Lake Au Sorcier, a distance of 30 miles.

An R.A.F. film

A FILM is at present being made by the Gaumont British Co. dealing with life in the Royal Air Force. Many R.A.F. stations have been visited, and the film will include parachute drops, formation flying by a squadron of Hawker "Furies," training scenes, and shots taken during the Lord Wakefield Boxing Tournament at Henlow. The film is, of course, being made under Air Ministry approval, so it can be taken for granted that what is being done is being done well. The film should be before the public some time in March of next year.

THE DEVELOPMENT OF AVIATION LIGHTING

By MAJOR R. H. S. MEALING

Paper (abridged) read before the Illuminating Engineering Society on November 14, 1933.

PRIOR to 1914 there was no night flying as we know it to-day, and therefore, so far as I am aware, there was no night lighting.

Then the Great War came, and with it the necessity for night flying proper.

Various devices were used for assisting aircraft to land, but the principle was always the same—namely, a line of flares—petrol or electric, in such formation as enabled a pilot to know:—

- (a) The position of the landing area proper, and
- (b) To enable him to judge his height above the ground.

The most important development was the introduction of the aerial lighthouse. These were used in France to enable night-flying squadrons to find their way home after bombing raids.

To-day civil routes throughout the world are provided with airway beacons, which have gone far to make night flying safe.

Civil aviation in this country began its life at Hounslow Aerodrome. There was erected the first aerodrome beacon, which was first operated on December 29, 1929. This light was supplied by the Gas Accumulator Company, Ltd.

Prior to this all beacons had been of the searchlight type, so that the pilot was either in or out of the beam—mostly the latter—and from that date was it known in this country that the searchlight type of beacon was no use.

In spite of that, other countries for years afterwards used the searchlight beacon until they realised that the very time it was wanted (i.e., at close ranges in bad weather) it could not be seen.

In April, 1920, Hounslow was given up as the civil aerodrome for Continental traffic, and Croydon took its place.

New beacons, obstruction and boundary lights, an illuminated wind indicator, and a landing floodlight were provided there.

Airway beacons were also provided on the Croydon-Continental route. Though very material changes have since been made to the actual apparatus, I think that acknowledgment should be made of the credit due to those who first devised the principles of this system of lighting, because, with certain slight alterations, it holds good to-day throughout the world.

From 1922 progress was slight, but the enormous growth of night flying in America from 1928 onwards provided the impetus which has to-day enabled us to make night landings at aerodromes and navigation on airways as safe as it is, and to provide the stage at which international agreement has arrived.

This question of international agreement is an extremely important one when you realise that the night-mail machine of the future will pass right through some countries in two to three hours.

The first step in obtaining this international agreement was taken by the International Illumination Commission at Saranac (U.S.A.) in 1928.

It is necessary to divide aviation lighting into:—

- (a) Airway lighting.
- (b) Aerodrome lighting.

Airway lighting can be divided into two parts, the "aids" and "hindrances" to air navigation. By "aids" I mean the beacons which show the way, and by "hindrances" the obstructions which get in the way.

For use in a country which is liable to suffer from bad visibility, and yet which is not too bad for flying, the design of the beacon must be such that its angle of light-distribution in a vertical plane is continuous from the horizontal to the zenith. The horizontal part of the beam of great intensity enables the beacon to be seen in good visibility at a great range, and the vertical part of the beam, although its intensity is not and cannot be so intense as the horizontal beam, enables the beacon to be picked up in conditions of bad visibility at short ranges if not actually over it.

For overseas use, and particularly for Empire routes, one can almost entirely rely on long-range beacons, where the light-distribution is concentrated to a high intensity in a small vertical angle just above the horizontal. The

reason is, that visibility overseas is mostly so good that it is not necessary to deflect any of the light into the upper angles in order to use it as a short-range bad-weather beacon; and when the visibility is bad, it is so bad that it is practically impossible to fly and the beacon is not required.

The location of the beacon must as nearly as possible be on the exact line of the airway, and above the fog line, but below the cloud line. In this country that usually means a height above sea-level of anything between 200 ft. and 500 ft.

Beacons should be spaced in such a manner that, having regard to the local topography, a pilot who does not deviate more than 5 deg. from the track between any two beacons will pass within visible range of the next beacon under the worst weather conditions in which regular night flying would normally be carried out. By following that principle one can employ small beacons closely spaced in hilly country, or large beacons widely spaced in open country.

To enable a pilot to know which route he is on and where he is, on that route, each beacon will have a small short-range identification light on the top, which will have its own character, and will not be repeated within one hundred miles.

The colour of the main beacon will be white, and that of the identification light red.

A pilot will thus be led along his route by a chain of beacons whose main character will be a single white flash, visible at long range in good weather, but equally visible at short range in bad weather, and will, in addition, be able to identify each beacon (which will be marked on his map) as he travels along.

In that manner will he be "aided." One must now consider the manner in which he will or might be "hindered" by obstructions.

So far as the physical features of the country over which a pilot is flying are concerned, he can normally acquire all the information he requires from his map. But there may be some artificial obstructions on or near enough to his route as to be a danger. By artificial obstructions I refer to wireless masts, very tall chimneys, overhead electric-cable towers, etc.

Such an obstruction should be illuminated by night with fixed red lights, one at the top and the number and location of the others according to the height of the obstruction above the ground level.

The following case illustrates how many factors have to be taken into consideration when dealing with lighting. Not long ago some wireless masts were erected near the Manchester municipal airport, which are used in conjunction with the wireless station at that airport. These masts were also quite near the Manchester-Liverpool railway line. The Air Ministry specified the number and type of obstruction lights which had to be fitted to each mast, and they were duly fitted.

Before long we had frantic messages from the London Midland & Scottish Railway Company saying we were stopping all the trains from Liverpool to Manchester. The red obstruction lights on the wireless masts were dead in line with one of the railway signal posts, where the railway line makes a slight curve.

The L.M.S. authorities were frightened that, sooner, or later, a driver might think he was looking at the wireless mast, whereas he was looking at the signal light, and go past it with disastrous results.

That difficulty was got over by fixing very small shields in front of the obstruction lights on the masts. Those shields have proved sufficient to prevent the light being seen from the railway line, and yet hardly detract at all from the usefulness of the lights for the purpose for which they were provided.

We can now imagine that a pilot has been led along his airway by the beacons; he has avoided the dangerous obstructions because they are illuminated, and now he is approaching his aerodrome of destination.

It will certainly be necessary for some aerodromes to be located well within the confines of the city—there are some examples already—but for the time being most aerodromes are located on the outskirts.

A pilot has got to be told exactly where the aerodrome is, and although he will be led to it by wireless,

he requires to have it indicated to him more precisely by an aerodrome beacon. When one considers the thousands of multi-coloured, sometimes flashing, advertisement signs which have been erected in the last few years, one can realise the difficulty of designing a beacon which can under no circumstances be mistaken for one of those signs or for any other light.

That beacon has to be distinctive from every light in the district, and has, moreover, got to be different from any other aerodrome beacon in the same district.

That beacon should be placed on or near to the aerodrome it is to indicate.

It is suggested that normally an aerodrome beacon should be red in colour and possess a code character which will consist of a single Morse letter. The same code character should not be allotted to any two aerodrome beacons within 100 miles of each other.

Whereas the neon tube lends itself admirably for use as an aerodrome beacon, it possesses no better fog-penetrating power than a white light passed through a red filter emitting the same hue wavelength.

The pilot has now been led to his aerodrome by the aerodrome beacon, which can be very easily distinguished from all other lights in the district. He now requires to know the precise size and shape of the landing area, and this information he obtains from boundary lights.

The function of these lights is to outline by night just as clearly as a fence, hedge or artificial markings will do by day, the actual perimeter of the landing area within which it is safe to land and operate.

The International Convention requires that boundary lights should be red in colour, but the various meetings of the International Illumination Commission have gone to show that there is from the technical aspect international agreement that normally they should be orange in colour and fixed in character.

It is also suggested, as the result of certain experiments which have been carried out, that they should be spaced at intervals of 300 ft. on the perimeter of the landing area. This figure was found to meet the requirements of a pilot being able at a glance to draw an imaginary line around the landing area, and yet was economically possible.

The pilot has now been led to his aerodrome, knows its size and shape, and prepares to land.

He obtains the direction and possibly the velocity of the wind by reference to an illuminated wind indicator. This takes the form of the letter "T," both arms of which should be approximately equal, and not less than 16 ft. in length. It is fitted with vanes along the main arm so that it lies with the head at 90 deg. to and against the wind. The direction of landing is as shown by the main arm of the head. The "T" should be outlined by white light, or any colour approximating thereto, to an intensity of 10 to 15 candles per foot run.

The pilot can now choose his exact line of approach for landing.

Try as one will, one cannot avoid having many dangerous obstructions around and on an aerodrome. It is necessary

to light every one, and that is done by outlining them vertically and horizontally by fixed red lights. Such a form of lighting will enable the pilot to glide either over or past them.

All that is now left for the pilot to do is to land the machine, and for that he requires a landing area flood-light. Many devices have been produced to enable the pilot to land across or even against the beam, but I think it will be agreed that the ideal form is where the pilot lands over the light and away from it.

Thus, the pilot ends his journey. By the aid of various forms of lighting he has been led along his route, and he has avoided any obstructions thereon. He has been brought to his aerodrome, and then safely led to the ground.

I have not supplied any technical data regarding the actual lights, because that will, in due course, be issued in the form of a British Standard Specification, which specification one can express the reasonable hope, in view of the measure of agreement which has already been attained, that it might become international, at least in principle if not in actuality.

What I have actually done is more or less to describe the work of the British Aviation Lighting Committee during the last four years.

Night flying has not made the progress in this country that it has in Germany and America, but, anticipating that it might progress, and, as usual, without any real warning, the British Committee issued last year, with the approval of the Air Ministry, a *Guide to Aerodrome Lighting*, which one might term an intelligent anticipation of what the final specification will be.

It was hoped that the *Guide* might be useful to all authorities responsible for the organisation of aerodromes, and would give them some indication of what is really required.

I cannot help but feel that if any country wants to attract air traffic, and in this case night air traffic, it must light its aerodromes and airways.

From a national point of view, it seems fair to suggest that the owners or licensees of the aerodrome should provide the necessary aerodrome lighting.

So far, in this country, all airway lights have been provided by the national Government, but I cannot say whether that practice will continue. In every other walk of life whatever is provided has got to pay for itself, either directly or indirectly, and sooner or later one has got to consider the imposition of some form of light dues, based on possibly present-day marine practice. Whether it is necessary to create some body equivalent to Trinity House for that purpose I am not prepared to say, but it is worth considering.

In this brief review I have endeavoured to tell you how aviation lighting commenced, the reasons for its use, the stage it has reached, and to make some suggestions for its operation and management in the future.

Any opinions expressed in this paper are to be taken as my personal opinions.



BRIE v. METROPOLITAN POLICE

A Successful Appeal

A CASE of the utmost importance to pilots was heard before the Surrey Quarter Sessions at Kingston on November 17. Not only was it the first instance of an appeal against a conviction for a flying offence, but the question of principle involved in the decision was one which affected all classes of aircraft users.

On October 18 Mr. R. A. C. Brie, the test pilot and flying manager of the Cierva Autogiro Co., Ltd., was charged before the Petty Sessions at Kingston with low and dangerous flying over the Kingston Bypass Road, in the neighbourhood of the Hook Aerodrome. The evidence for the prosecution was that he was circling the aerodrome at a height of 200 ft. and that on two or three occasions at a point where the Kingston Bypass runs along the edge of the aerodrome he allowed his machine to sink more or less vertically on an even keel to a height of not more than 50 ft. over the Bypass. It is alleged that by reason of this, cattle in an adjoining field were frightened, and motorists were caused to pull up suddenly, thereby endangering traffic on the road behind them.

The evidence of Mr. Brie was to the effect that he had been asked to give a demonstration of the "Autogiro" at the Hook Aerodrome in connection with a local Hospital Pageant, and that after flying over there to make arrangements, he made several practice approaches towards the point on the aerodrome on which it would be necessary for him to demonstrate his slow landings. His maximum height was 800 ft. and minimum height over the road 200 ft.

The Bench decided to convict, and imposed a fine of £5 and £5 5s. costs. From this conviction Mr. Brie appealed.

On the hearing of the appeal it was admitted by the prosecution that their case was based not on the fact that there was any actual danger of the machine hitting any person or property, but on the fact that motorists and cattle were alarmed by the proximity of the aircraft and caused to act in such a manner as to endanger themselves or others.

It is obvious that if this contention were correct, pilots

might easily find themselves in a very serious position. The degree to which a person is liable to be alarmed by an aircraft depends mainly upon his knowledge of flying. The aviator has no means of knowing the extent of such knowledge, and it was submitted for the appellant that if he was flying in a normal manner round the aerodrome, having regard to the characteristics of the particular type of machine, he could not fairly be held in any way responsible for actions due to alarm on the part of people in the vicinity unless there was in fact good cause for such alarm. To hold otherwise would mean that every licensed aerodrome which had a main road running alongside it (e.g., Croydon) might be rendered unusable because, although the Air Navigation Consolidation Order only refers to the causing of unnecessary danger, it might quite easily be argued that there is no absolute necessity to take off from, fly round, or land upon any particular aerodrome, and that if the direction of the wind involved flying low over a main road, it was the duty of the pilot not to fly. Such a decision would have had a very adverse effect upon the progress of civil aviation generally.

The Quarter Sessions Bench endorsed this point of view, held that there was no danger, and allowed the appeal with costs. It has now, therefore, been authoritatively decided that in order to support a prosecution for low and dangerous flying there must either have been unnecessary damage

caused by the aircraft itself or a real danger of such damage. Mere apprehension will not support a prosecution unless there is in fact good grounds for such apprehension.

It must not be thought that this decision entitles a pilot to fly as low as he likes without regard or consideration for the feelings of those on the ground. Low flying in the neighbourhood of a licensed aerodrome in the course of the normal incidents of flight must be distinguished from unnecessarily low flying on cross-country flights or low flying for the purpose of stunting or "showing off." The latter instances will still leave a pilot open to prosecution, because they may be a real danger of damage either in the event of engine failure or in the event of any error of judgment, and such danger will be unnecessary. It is only the pilot who is genuinely carrying out the ordinary and normal incidents of flight at a height which is reasonable, having regard to all the circumstances, who is protected by the decision, which is as it should be.

It may be of interest to note that the appeal was supported in principle by the following bodies:—The Royal Aero Club; the General Council of Light Aeroplane Clubs; the Automobile Association; the Society of British Aircraft Constructors; Imperial Airways, Ltd., and the Royal Aeronautical Society.

Mr. Trapnell, K.C., Mr. Maude and Mr. Cassels appeared for the appellant.



A NEW AUTOMATIC CONTROL

THE P.B. automatic control is the invention of Mr. J. Pollock Brown, M.I.Mech.E., who claims that he is supplying a long-felt want for a thoroughly reliable "Robot" which will see a pilot safely through fog and on any long arduous flight which calls for careful navigation.

It is compact and light enough in weight to have been easily installed in Mr. Phillip Bailey's "Puss Moth" some three or four months ago, and has completed over 50 flying hours in complete control, and so merited and received Air Ministry approval for commercial use.

In one flight in particular, from London to Cherbourg, Mr. Bailey relied on it the whole way without any loss of direction. Several well-known pilots have flown with it, including one of our best-known test pilots, who, according to Mr. Bailey, expressed the opinion that it did more than was claimed for it, though only operating on the rudder.

We, ourselves, had an opportunity of trying it out for about 40 minutes. When the pilot is in operation on the rudder, there is ample balanced pressure to keep the machine sweetly on a steady fixed course. No matter how much one played about with the "stick," putting on practically full bank on both sides, pulling the nose right up till the speed of the machine was reduced to under 50 m.p.h., or diving down at a speed of 140 m.p.h., the automatic control kept the machine on its course, and the natural stability of the machine, assisted, of course, by previous setting on the actuating gear, brought it back on to an even keel. That the machine kept its course with feet off the rudder bar there is no question, and if this automatic pilot can so successfully control the rudder, there seems to be no reason why it should not do the same to the elevator if required.



The apparatus is of sound engineering construction, eliminating all extremely delicate details. A servo system is also provided which needs no attention or "faking" to keep in reliable operation. It can be arranged to operate on either one axis, such as Azimuth, or two axes, such as Azimuth and Pitch or Roll, as may be desired.

A sturdy gyro. rotor is universally mounted, in a special manner, on the ball end of a mechanically driven spindle to give the freedom of oscillation desired, and when linked up in a particular way to relay valves of generous dimensions distributes hydraulic pressure to the respective servo cylinders, which are connected to the aircraft controls in the usual way and have follow-up linkages to the gyro. unit, which is universally mounted on the base plates.

Hydraulic pressure is supplied from a small wind-driven pump working in a closed system which looks after itself.

Actually, an automatic control on the rudder alone would be a most valuable assistance to a pilot, for it is the manual operation of the rudder which is so exacting and tiring to a pilot, even though he has perfect visibility, and the actuating gear on an up-to-date machine can be set so as to call for little effort or concentration on the stick controls. A pilot would then have the required freedom to attend properly to his navigation.

In the case of a single control, the movement of the machine vertically is not permitted the chance of embarrassing the Gyro. apparatus, by the fitment of what the inventor calls a small servo "Policeman" to "keep the peace."

The complete weight of this simple control apparatus is only about 26 lb., and the extra control only adds about 5 or 6 lb.



R.A.F. replacement flight

FIVE Vickers "Victoria" troop-carrying machines are at present on their way to Iraq. These machines are fitted with Bristol "Pegasus" engines and are replacing older machines of the same type. They are bound for No. 70 (Bomber Transport) Squadron, Hinaidi, and are under the command of Sqd. Ldr. D. V. Carnegie, A.F.C.

"Miss Britain III's" Triumph

ONCE again the British Power Boat-Napier-Scott Paine triumvirate has raised the unofficial world's salt water speed record for single-engined boats. On November 16, in Southampton Water, Scott-Paine made five runs, and of these the fourth and fifth being the best were counted, the speeds being 102.105 m.p.h. and 98.234 m.p.h., the average (subject to official confirmation) being 100.168 m.p.h., and this despite the fact that the conditions were

bad. We described the unique design of this boat, for which Mr. Scott-Paine himself is responsible, in FLIGHT for August 10, 1933. The Napier "Lion" engine was one of those specially designed for the Schneider Trophy Races and gives about 1,350 h.p. Mr. Scott-Paine states that *Miss Britain III* may be taken as the prototype of another boat which he will build to race against Commodore Gar Wood for the British International Trophy.

Festivities at Croydon

THE Croydon Airport Social Committee are holding a masked fancy dress carnival, as their Staff Ball, at the Greyhound Theatre, Croydon, on December 7 at 7.45 p.m. The judges of the costumes will be Maj. and Mrs. L. F. Richard and Capt. and Mrs. H. S. Leverton. Tickets, which can be obtained from the Committee, are 2s. 6d. single.



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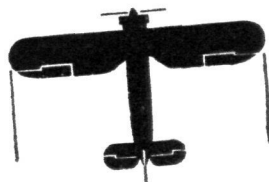
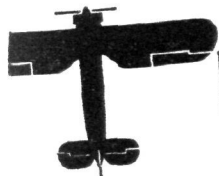
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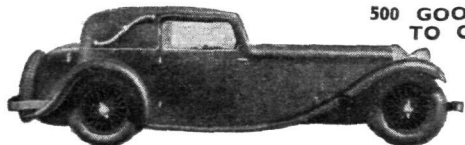
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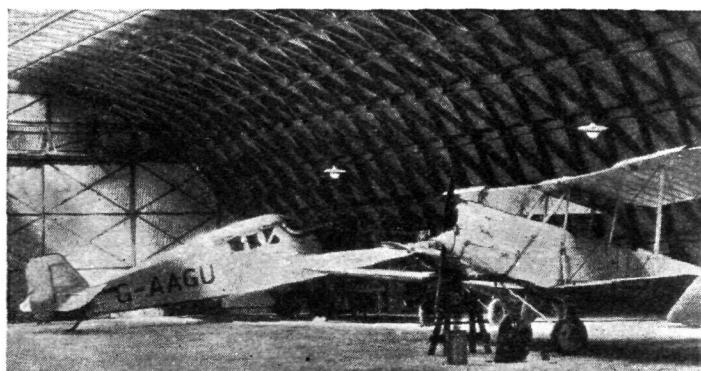
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THE ROYAL AIR FORCE

London Gazette, November 14, 1933.

General Duties Branch

P/O N. D. Crockart is promoted to rank of Flying Officer (Oct. 11); Flt. Lt. A. H. H. MacDonald is placed on half-pay list, Scale A (Nov. 5). The follg. Flight Lieutenants are transferred to the Reserve, Class A (Nov. 10):—E. V. Major, W. J. Pearson.
Lt. H. L. Hayes, R.N., Flying Officer, R.A.F., ceases to be attached to R.A.F. on return to Naval duty (Oct. 30). (Substituted for Gazette Nov. 7.)

Memorandum

318453 Cadet J. V. Hatley is granted an hon. commn. as 2nd Lt., with effect from date of demobilisation.

ROYAL AIR FORCE RESERVE RESERVE OF AIR FORCE OFFICERS

General Duties Branch

Flt. Lt. W. J. Umpleby is transferred from Class A to Class C (Nov. 11); Gazette July 25 concerning F/O C. D. Barnard is cancelled. The follg. Flying

Officers relinquish their commns. on completion of service:—D. L. Eskell (March 13); F. C. Bridle (Aug. 7); S. W. White (Nov. 3).

P/O L. B. Clarke relinquishes his commn. on completion of service (Aug. 4); F/O K. S. Alderton relinquishes his commn. on account of ill-health (Nov. 15); F/O A. M. Anderson, D.F.C., relinquishes his commn. on account of ill-health and is permitted to retain his rank (Nov. 15).

SPECIAL RESERVE

General Duties Branch

The commn. of P/O. on probation H. J. Raymond is terminated on cessation of duty (Nov. 3).

AUXILIARY AIR FORCE

General Duties Branch

No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—The follg. Flying Officers are promoted to rank of Flight Lieutenant (Oct. 20):—I. Kirkpatrick, Lord George Nigel Douglas-Hamilton.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Air Commodore: R. E. C. Peirse, D.S.O., A.F.C., to H.Q., Palestine and Transjordan, Jerusalem, 21.10.33, to command, vice Air Vice-Marshal W. R. Freeman, C.B., D.S.O., M.C.

Wing Commander: J. W. Woodhouse, D.S.O., M.C., to Experimental Section, Royal Aircraft Estab., S. Farnborough, 24.10.33, for flying duties vice Wing Com. G. H. Bowman, D.S.O., M.C., D.F.C.

Flight Lieutenants: J. C. Cunningham to No. 18 (B.) Sqdn., Upper Heyford, 31.10.33. S. A. Turner, M.B.E., to R.A.F. Depot, Uxbridge, 13.11.33.

Flying Officer: K. Lea-Cox to No. 15 (B.) Sqdn., Martlesham Heath, 2.11.33.

Flying Officers: G. R. Stroud to No. 99 (B.) Sqdn., Upper Heyford, 5.11.33. D. M. Lynch-Staunton to No. 99 (B.) Sqdn., Upper Heyford, 8.11.33.

Acting Pilot Officers: The following Acting Pilot Officers are posted to R.A.F. Depot, Uxbridge, on 7.11.33, on appointment to Short Service Comms.:—S. G. Birch, C. C. Byar, A. B. Dreghorn, C. L. Gomm, C. C. Hodder, P. S. Hutchinson, W. O. Jones, J. C. M. Lonsdale, V. H. P. Lynham, R. G. Musson, R. G. Seys, R. G. Slade, J. M. Southwell, W. N. Stubbs.

Stores Branch

Squadron Leaders: T. E. Drowley, O.B.E., to H.Q., Central Area, 13.11.33, for Equipment (Stores) Staff duties. F. J. W. Humphreys to Air Ministry,

Dept. of A.M.S.R. (D. of E.), 13.11.33, for Stores Staff duties vice Sqd. Ldr. T. E. Drowley, O.B.E.

Flight Lieutenants: R. W. Stevenson to R.A.F. Base, Gosport, 3.11.33. H. Seidenberg to Packing Depot, Sealand, 14.11.33. H. E. Young to H.Q., Coastal Area, Lee-on-the-Solent, 14.11.33.

Medical Branch

Flight Lieutenant H. Penman to R.A.F. Training Base, Leuchars, 6.11.33.

Flying Officers: L. S. Everett to R.A.F. Base, Gosport, 6.11.33. W. P. Griffin to No. 5 Flying Training School, Sealand, 6.11.33.

Chaplains Branch

Rev. T. M. Jones, B.A., to School of Army Co-operation, Old Sarum, 12.11.33, for duty as Chaplain (Presbyterian) at Old Sarum, Upavon and Netheravon.

NAVAL APPOINTMENTS

The following appointments have been made by the Admiralty:—

Lieutenants (Flying Officers, R.A.F.): R. A. Kilroy to Victory, for R.A.F. Base, Gosport (November 1). J. D. C. Little to Victory for School for Naval Co-operation (November 15); and to York (on recommg.); V. D. Gask to Victory for School of Naval Co-operation (December 3); and to Cornwall (December 19); J. M. Wintour to Victory for R.A.F. Base, Gosport (November 15); and A. F. Black to Victory for R.A.F. Base, Gosport (November 22); and to Furious; and D. R. F. Cambell to Courageous (December 3).



Lord Wakefield Boxing Competition

THE sixteenth Competition for the Lord Wakefield boxing trophies was held at Henlow on Wednesday and Thursday, November 15 and 16. The programme stated that this tournament was open to novices only, so spectators must not expect to see a very high standard of boxing; nevertheless, some of the boxing was well above the average expected of novices, and all the fighting was clean and interesting.

Among the officers, the most interesting fight was that in which A.P.O. Robinson, of Sealand, knocked out P.O. Smith, of Bircham Newton, by old-fashioned hard hitting, rather than by clever boxing. In the junior section, L.A.C. Cooper, of Eastchurch, showed good form in keeping off a taller opponent, chiefly by judicious use of his left. Among the seniors, A. A. Dunn, from Halton, although beaten on points by a boxer with more experience, showed great promise in that he kept his head and refused to get "rattled"; he was also one of the few boxers, during the evening, who did not tire his feet by unnecessary dancing about. In the heavier weights, A.C. Grierson, of Uxbridge, knocked out A.C. Tanner, of Andover, in a fight that might have ended in the first round; defence was conspicuous for its absence, and it was simply a case of who landed a hard enough punch first; this Grierson did with a beauty to his opponent's chin. In the final contest of the evening, Henlow gained a belated victory over Uxbridge, A.C. Jamieson knocking out A.C. Saunders in the first round. In class "A," Officers, Sealand were easily the winners, with 29 points to their credit, Henlow being second with 16 points, and Grantham third with 15. Last year's holders, Digby, did not compete for the simple, but tragic reason that, as a station, it is no more. In class "B," Airmen Open, Uxbridge, came out top with a score of 34 points, Henlow the holders being second with 31 points, and Halton "A" team third with 24. In class "C," Airmen Junior, Felixstowe totalled 34 points, and Eastchurch came a close second with 29.

Air Vice-Marshal F. W. Bowhill, C.M.G., D.S.O., President of the R.A.F. Boxing Association, said that everybody present would regret that Lord Wakefield had been prevented from attending. Air Chief Marshal Sir Edward L. Ellington, K.C.B., C.M.G., C.B.E., A.D.C., Chief of the Air Staff, then gave away the prizes, and in a short speech made mention of the sportsmanship which had been shown throughout the meeting. (As a matter of fact, during the whole of Thursday evening there was only one occasion of a competitor being pulled up for an obvious fault, and that was when a tallish man was hit below the belt by a much shorter opponent; it was obviously an accident, and the punch was a very light one.)



The organisation of the competition was beyond criticism, the ring was excellently lit, and the officer responsible for the ingenious use of old parachute quick releases for attaching the ropes to the corner posts is to be congratulated. Among the guests was Sir Philip Sassoon, Under Secretary of State for Air.

Lympne Aerodrome Customs Arrangements

UNTIL further notice, arrangements for the attendance of Customs officers at Lympne Airport will be in accordance with the undermentioned time-table, subject to temporary modification if and when circumstances require:—

- (a) Summer Period (while B.S.T. is in force).—Monday to Saturday, from 8.00 a.m. to one hour after sunset or to 10.00 p.m., whichever is the earlier. Sunday, from 9.00 a.m. to one hour after sunset or to 10.00 p.m., whichever is the earlier.
- (b) Winter Period (G.M.T.).—Monday to Saturday, from 9.00 a.m. to 5.00 p.m. Sunday, from 10.00 a.m. to sunset or "all clear," whichever is the earlier.

[Note.—When Easter falls within the winter period, attendance will be as follows:—Good Friday to Easter Monday (inclusive), from 9.00 a.m. to one hour after sunset.]

Night Flying without Navigation Lights

ROYAL AIR FORCE aircraft may be flying by night over the areas described below, between the times and during the periods mentioned. Above the altitudes given the aircraft will not exhibit navigation lights unless other aircraft are observed in their vicinity.

- (a) Within a radius of 10 miles of Gosport:—Between 5.30 p.m. and 10.0 p.m. until December 8, 1933. Altitude, 6,000 ft.
- (b) Within a radius of 10 miles of Falmouth:—Between 8.0 p.m. and 9.0 p.m. on Mondays, Tuesdays and Thursdays, until March 31, 1934. Altitude, 2,000 ft.
- (c) Within a radius of 10 miles of Fowey:—Between 8.0 p.m. and 9.0 p.m. on Mondays, Tuesdays and Thursdays, until March 31, 1934. Altitude, 2,000 ft.
- (d) Within the area bounded by straight lines, joining Addington, Chelsfield, Sevenoaks, Oxted, and Addington:—Between 1½ hours after sunset and 3½ hours after sunset, until December 31, 1933. Altitude, 5,000 ft.

Inquest on flying boat crash victims

AT the resumed inquest, held at Fawley, Hants, on F/O J. F. Peacock and L.A.C. H. Foley, who were killed when a wooden "Southampton" crashed at Calshot on October 17, Capt. F. S. Wilkins, of the Accidents Branch of the Air Ministry, said that the tail actuating gear was found in a fully forward position, which would make

the flying boat extremely nose-heavy. He thought that it would be difficult, if not impossible, for the machine to take off from the water. In reply to the Coroner, he said that the responsibility for the position of the gear rested normally on the instructor in charge of the aircraft. The jury returned a verdict that the accident was due to an error of judgment.

PIPERS OF THE SCOTTISH A.A.F. SQUADRONS

LAST year we published an article on the Auxiliary Air Force Squadrons of Scotland, namely, No. 602 (City of Glasgow) and No. 603 (City of Edinburgh) (Bomber) Squadrons. In that article we showed a photograph of the Pipe Band of the Edinburgh Squadron marching at Turnhouse aerodrome, and we remarked, "at present it does not wear kilts, and that is a point which is rather worrying the squadron. What would a kilt of Air Force blue look like?" At last the pipe bands of both squadrons have been given permission to wear kilts and plaids, and we now publish a photograph showing the band of the City of Edinburgh Squadron marching to church at the head of the squadron for the Armistice Day service on Sunday, November 12. This was the first occasion on which these kilts and plaids appeared in public, and very smart they looked. Both the squadrons use the same tartan. It is a very historic tartan, known as the "Gray



Douglas," and its squares of black and white go exceedingly well with the Air Force uniform. This tartan is the family tartan of the great Douglas family, in olden times the most powerful family in the Lowlands. The present head of the family is the Duke of Hamilton and Brandon, whose heir, the Marquess of Douglas and Clydesdale, is the Commanding Officer of the City of Glasgow Squadron. The 21 pipers and drummers are all competent airmen.

CORRESPONDENCE

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.

AIR TRAFFIC CONTROL AND THE PRIVATE OWNER

[2897] With reference to the very lucid article under the above heading in your issue of November 9, it struck me that a very fair comparison exists in the recent legislation that compelled motorists to insure against "third-party" risks; for the benefit of others, not themselves. This seems to me a parallel case; private owners will be compelled to instal wireless, or give up flying; just as a motorist would be obliged to give up motoring if, for any reason (*e.g.*, additional expense) he did not wish to take out the necessary insurance policy.

Yours faithfully,
P. AUSSEY.

Weybridge.
November 14, 1933.

TOWED GLIDERS (From Sir Affiott Verdon-Roe)

[2898] Recently I saw a film of a glider being towed by a motor-car; the glider banked severely and the nose shot up, throwing the pilot from his seat, who fell turning somersaults. His contact with the ground was not shown, but he must have been killed.

I consider the person or persons towing him were responsible for the accident. Anyone who tows a glider should be prepared to free the line in the event of the towed assuming, or tending to assume, an awkward angle; at least, that was my experience in 1907 and 1908, because it was quite easy to glide down if freed.

My difficulty was to ensure that the towers would release me as soon as the glider banked, and in spite of the fact that I had endeavoured to impress upon them the importance of not holding on too long, they seemed to be hypnotised with the necessity of hanging on with inconvenient fidelity. After three or four experiences of this sort I fitted a slip device, but even so it is advisable for the towers to be ready to release the line.

These towing flights were made down the finishing straight at Brooklands, and I found the spiked railings on either side rather disconcerting, but fortunately only struck them once, without any personal injury.

I am writing this letter in the hope that it will act as a warning to anyone attempting towed flights.

Also, these towing flights were made carrying the 9-h.p. J.A.P. engine, not running, of course. The 24-h.p. "Antoinette" engine used for my subsequent flights was not much heavier than the J.A.P., and, owing to the engine position being near the C.P., it made little difference to the balance of the machine.

As regards my flights on June 8, 1908, with the same machine fitted with a 24-h.p. "Antoinette" engine, and according to witnesses, it did from 75 to 150 ft. It is interesting to note that mathematical calculations show that this machine could not have done even 70 ft. without having flown. The first official flight was nearly a year after.

East Cowes, I.O.W.
November 10, 1933.

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PETRA, LTD., Empire Chambers, St. Paul's Road, Smethwick, Staffs.—Capital £5,000, in 2,500 £1 shares and 25,000 2s. shares. Manufacturers, producers, distillers, and importers and exporters of dealers in petrol, oils, lubricants, greases, tallow, etc. Directors: Geo. H. Keat, "Broadway," Uxbridge Road, Harrow Weald (director of Aero Motor Spirit Co., Ltd.); Jesse Wm. C. Burgoine, 2, Coleraine Road, Westcombe Park, Blackheath, S.E.3 (director of Aero Motor Spirit Co., Ltd.); Ruben G. Terakopoff, 81, Priory Road, Kew Gardens, Surrey (director of Brittol Syndicate, Ltd.); Fredk. C. H. Katon, "Longmynd," Bleakhouse Road, Warley, Wores., petroleum technologist; Norman R. Dickson, "Heol-y-cyw," Lichfield Road, Four Oaks, Warwickshire, petrol salesman.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor.
(The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1932

Published November 23, 1933

- 1,893. E. SEPPELER. Variable-pitch screw propeller. (400,611.)
20,744. H. BOLAS and R. J. G. CROUCH. Aircraft. (400,735.)

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- 11,387. CARBURATORI MEMINI SOC. ANON. ITALIANA. Carburettor for use with aircraft engines. (400,851.)
13,018. NAKAJIMA AIRCRAFT CO., LTD. Speed-reduction gear for aircraft engines. (400,865.)
19,224. NAAMLOOZE VENNOOTSCHAP MACHINERIEEN-EN APPARATEN FABRIEKEN. Transportable apparatus for illuminating aircraft landing-fields. (400,895.)
20,147. SVENSKA AKTIEBOLAGET GAS-ACCUMULATOR. Beacons. (400,900.)

Personals.

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MOIR : CROCKETT.—The engagement is announced between FLIGHT LIEUT. JAMES FRANCIS MOIR, R.A.F., and MISS RUTH CROCKETT, daughter of the late Mr. H. R. Crockett and Mrs. Crockett, of Long Spring, Melton, Suffolk.

DAVIDSON : DAHLSTRAND.—The marriage between FLIGHT LIEUT. A. P. DAVIDSON, R.A.F., and FRÖKEN JANE ELIZABETH DAHLSTRAND will take place at St. Mary's Church, Oatlands, on Saturday, December 2, at 2.15 p.m.

FIELD : SQUIRRELL.—The marriage of FLYING OFFICER D. B. D. FIELD, R.A.F., only son of Mrs. I. M. Burton Leach, of "Woodrising," St. George's Avenue, Weybridge, and JOAN, only daughter of Mr. and Mrs. Squirrell, of 33, Gunnersbury Avenue, W.5, will take place on December 2, at Ealing.

RAMBAUT : BATTINE.—The marriage arranged between CHRISTOPHER FERGUS MARLANDE RAMBAUT, R.A.F., elder son of Daniel Frederick Rambaut, M.A., M.D., and Mrs. Rambaut, Priory Cottage, Northampton, and STELLA ESMÉ, younger daughter of Maj. Alexander Battine, late R.A., and Mrs. Battine, will take place at St. Mary Magdalen's Church, Bexhill, on December 21, at 2.30 p.m.

Births.

MILLAR.—On November 10, 1933, at 17, Grosvenor Terrace, Glasgow, W.2, to CONSTANCE BARBARA, wife of FLIGHT LIEUT. BRIAN R. MILLAR, R.A.F.O.—a daughter.

TRAILL.—On November 7, 1933, at Andover, to "MOLLY," wife of FLIGHT LIEUT. T. C. TRAILL, prematurely—a son (DAVID), who survived only a few hours.

WILLETTS.—On November 7, 1933, at Woodside Nursing Home, Plymouth, to NANCY (née Whately), wife of FLIGHT LIEUT. WILLETTS—a daughter.

BAILEY.—On November 12, 1933, at Swiss Cottage, Brough, to PHYLLIS, wife of H. BAILEY, R.A.F.O.—a daughter.

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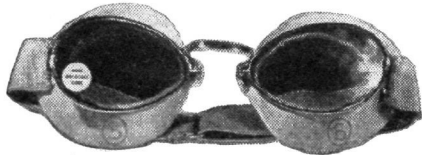
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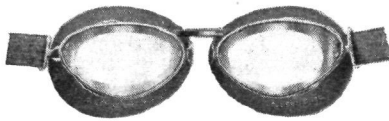
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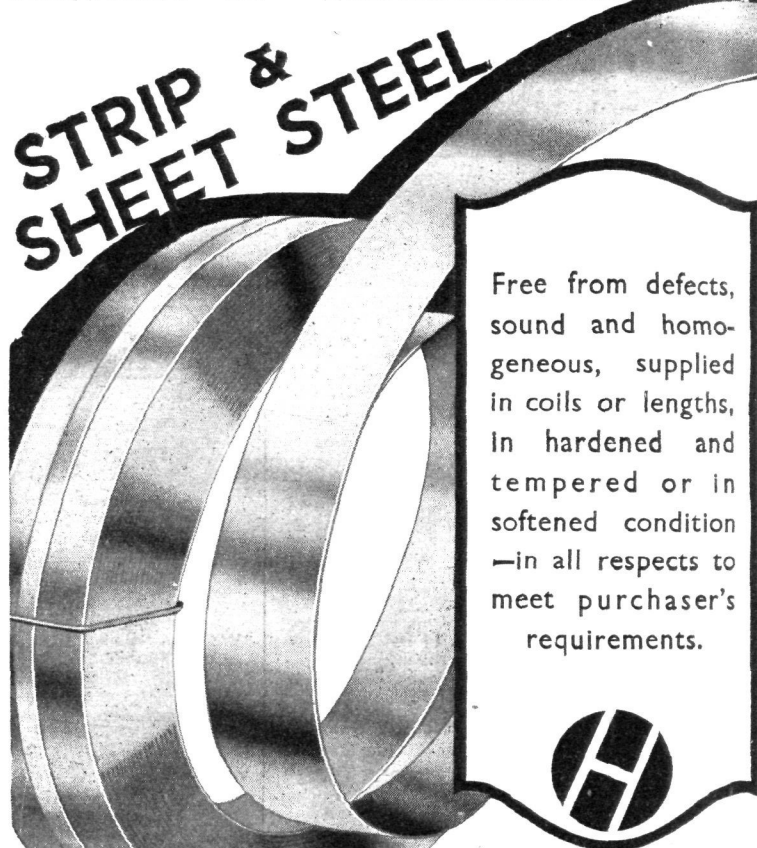
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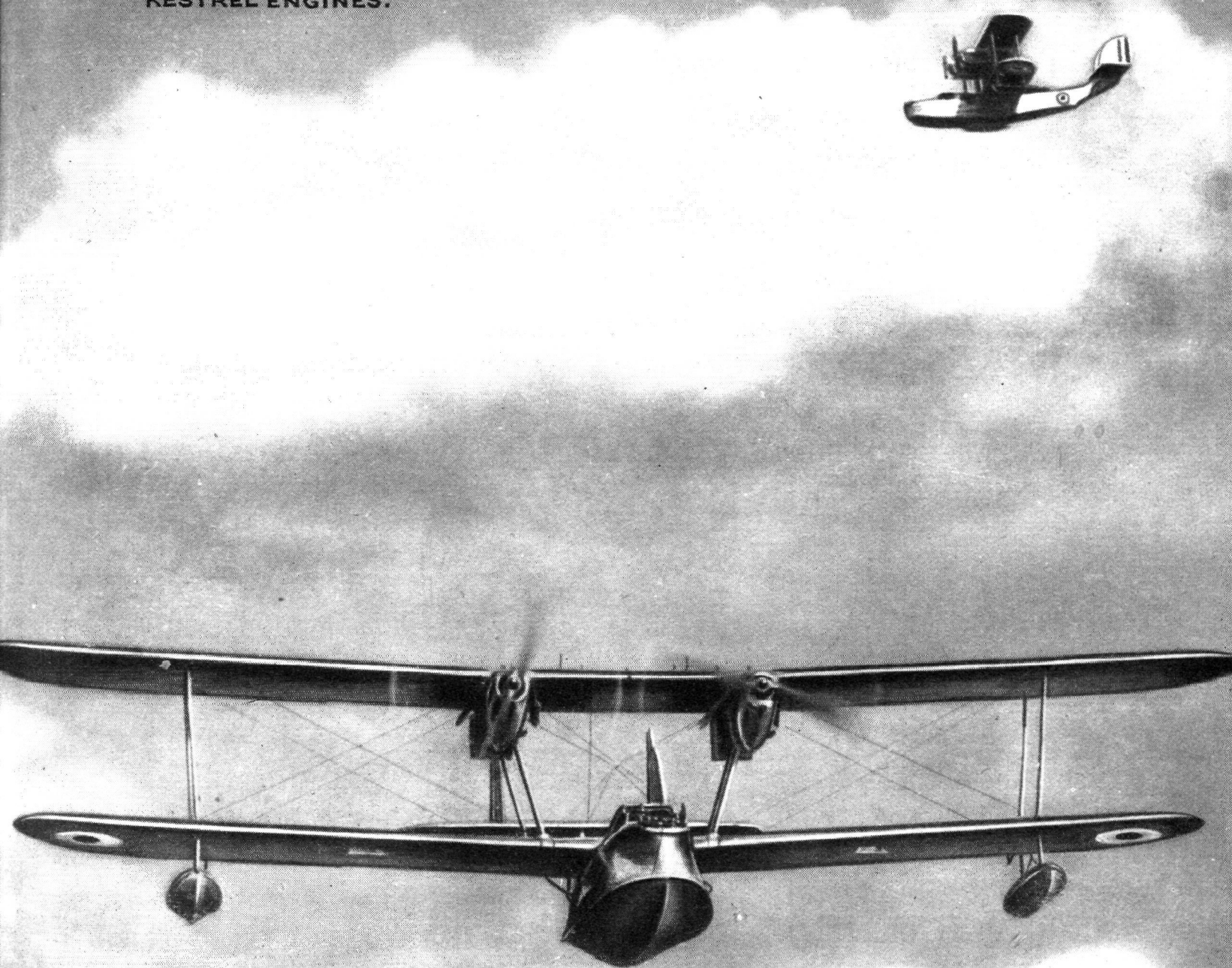
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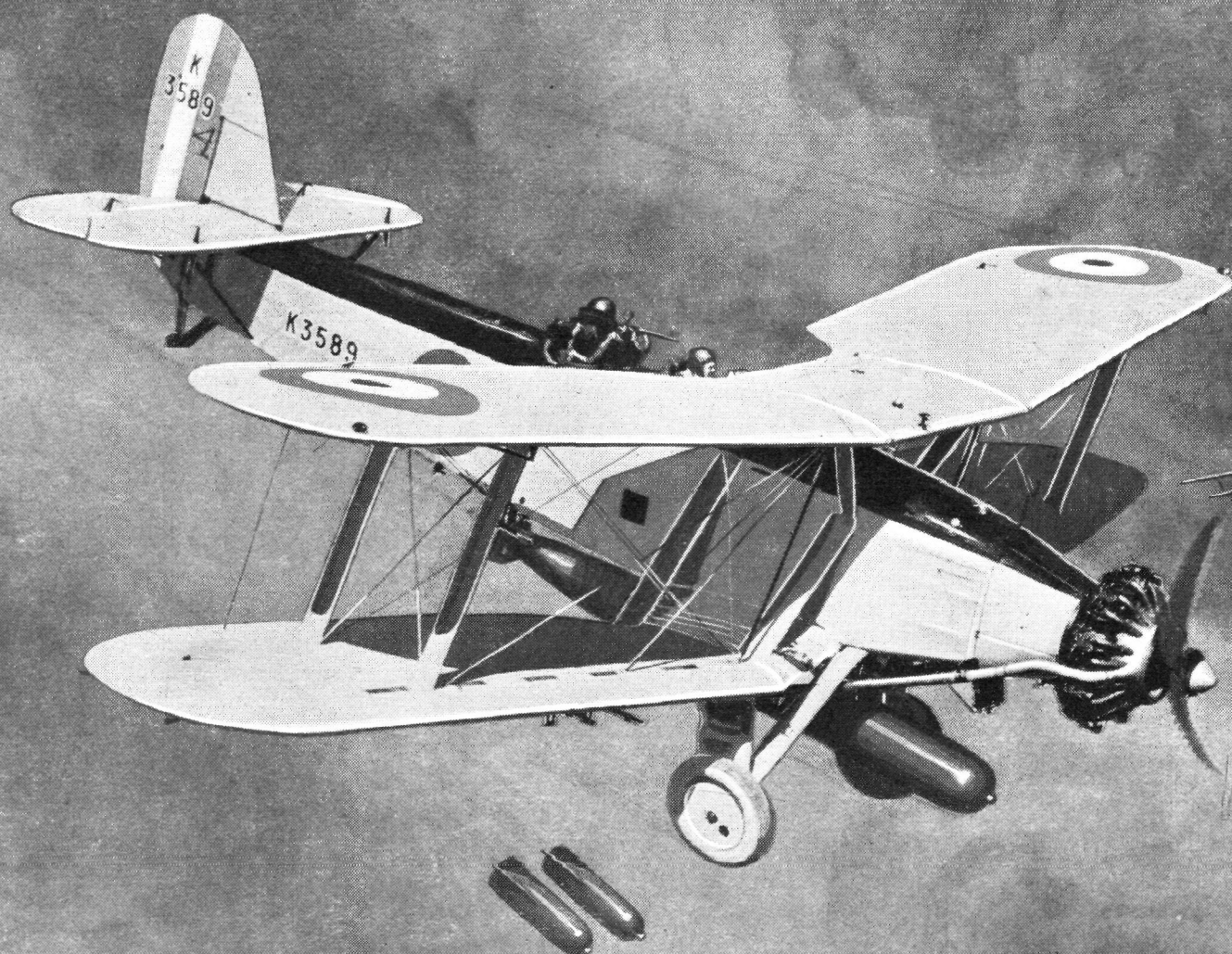
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